**IMPORTANT**

Before you remove the Wire-Seal, check the contents of this envelope with the listing on the front of the envelope. If any part is missing, your Howard W. Sams distributor will replace the entire PHOTOFACT set IF the Wire-Seal has not been damaged.

# This PHOTOFACT Folder Set is

## WIRE-SEALED FOR YOUR PROTECTION

## to guarantee completeness of contents

**DO NOT ACCEPT IF SEAL HAS BEEN BROKEN**

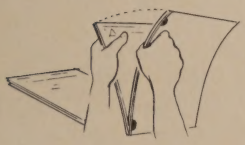
**TO OPEN** ***JUST DO THIS:***

**1**

Take hold of the Set with both hands. Place your thumbs directly under the top wire-seal; then, divide the contents equally by putting your thumbs midway through the thickness of the Set. Now, pull the two sections apart at the top, firmly.

**2**

Repeat this process, pulling close to the wire-seal at the bottom, so that the set is now divided into two equal parts.



**3**

Continue this "pulling-apart" process with the section in which the wire-seals remain, dividing it in half.

**4**

Finally, remove the wire-seals left in the last section; this can easily be done with your fingernail or any sharp instrument.

*Your "Safety-Sealed" PHOTOFACT Set is now ready for profit-making use . . .*

**IMPORTANT**

Before you remove the Wire-Seal, check the contents of this envelope with the listing on the front of the envelope. If any part is missing, your Howard W. Sams distributor will replace the entire PHOTOFACT set IF the Wire-Seal has not been damaged.

# The PHOTOFACT® Servicer

SET 518 ★ *Published for all users of Howard W. Sams' Photofact Folders* ★ FEB. 1961

## CONTENTS PHOTOFACT SET 518

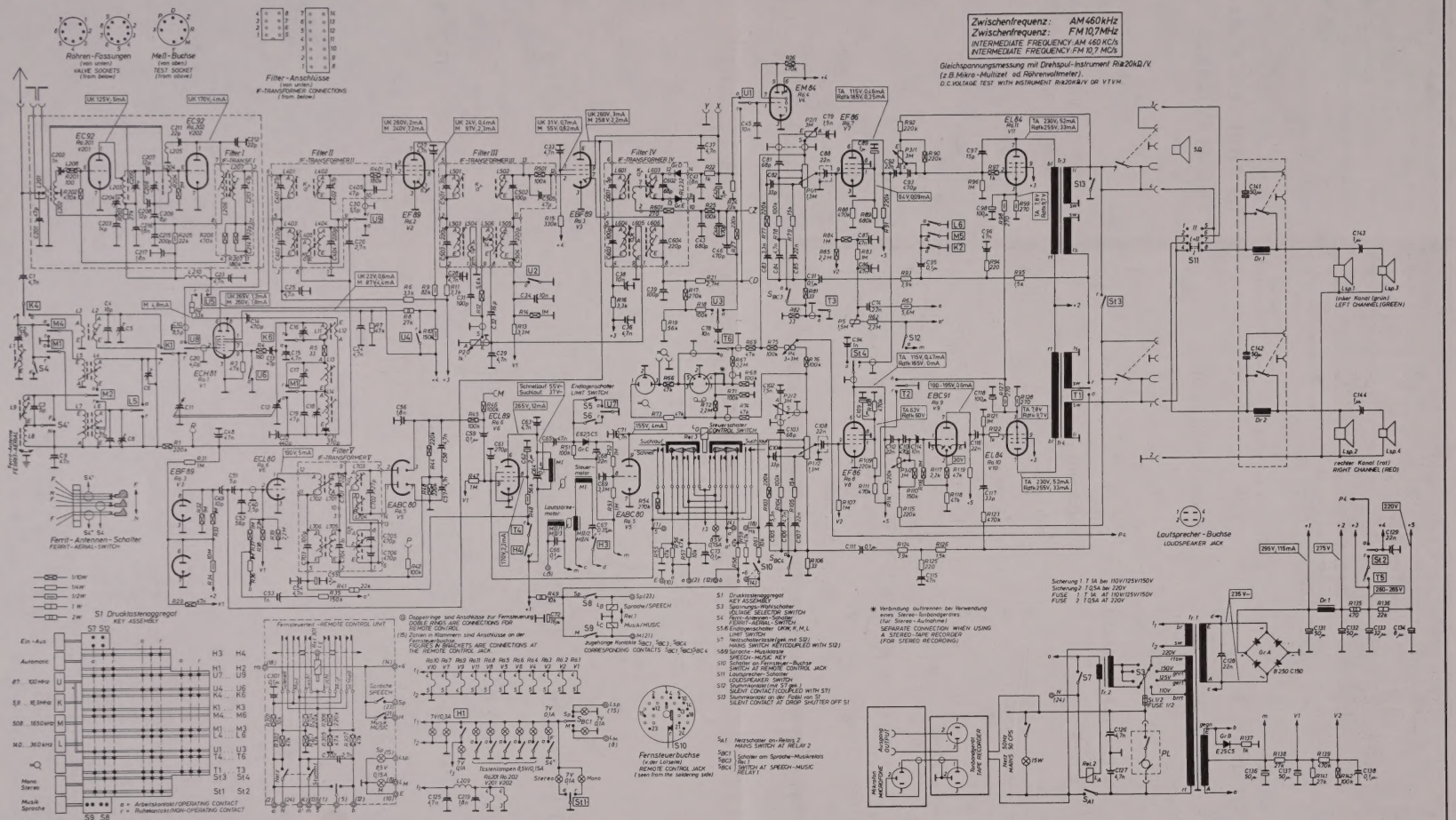

| TRADE NAME AND MODEL | SET AND FOLDER NO. |
|---|---|
| **TELEVISION RECEIVERS** | |
| AIRLINE | |
| WG-4203C, WG-4303C | 518-1 |
| SILVERTONE | |
| Chassis 456.52280, 301, 302, 528.52280, 301, 302 | 518-2 |
| **PRODUCTION CHANGE BULLETIN** | |
| ADMIRAL Phonograph | |
| Y4057, Y4081, Y4082, Y4083 | 518-3 |
| AIRLINE Tel. Rec. | |
| WG-5200B, WG-5209B, WG-5210B, WG-5300B, WG-5309B, WG-5310B | 518-3 |
| ZENITH Transistor Radio | |
| Royal 710 (Ch. 7CT43Z5) | 518-3 |
| **OTHER EQUIPMENT** | |
| ESQUIRE | |
| 2525, 2526 | 518-4 |
| GENERAL ELECTRIC | |
| P815A, P816A | 518-5 |
| NORELCO | |
| L3X76T-01, -02, -04, -05, -07, -10 | 518-6 |
| OLSON | |
| RA-341 | 518-7 |
| OLYMPIC CONTINENTAL | |
| GBS386 | 518-8 |
| PHILCO | |
| H-1385, H-1413 | 518-9 |
| H. H. SCOTT | |
| 330-D | 518-10 |
| SILVERTONE | |
| 1053, 1055, 1056 (Ch. 528.53970, 528.53980) | 518-11 |
| 1215, 1216 (Ch. 528.53910) | 518-12 |
| STEELMAN | |
| 604, 704 | 518-13 |
| SYMPHONIC | |
| 523, 1523, 1619, 1623, 1693 | 518-14 |
| TECH-MASTER | |
| PA-41 | 518-15 |
| TELECTRO | |
| 1975 (Tape Recorder) | 518-16 |
| WEBCOR | |
| EP-2008-1, EP-4008-1 | 518-17 |


This Servicer provides you with essential data on other models or special equipment not covered in standard PHOTOFACT folders. The schematics and supplementary data included here will be of valuable help to you in servicing this equipment.

## IN THIS ISSUE OF THE SERVICER:

Bigg of California Model "George Gott" G50D

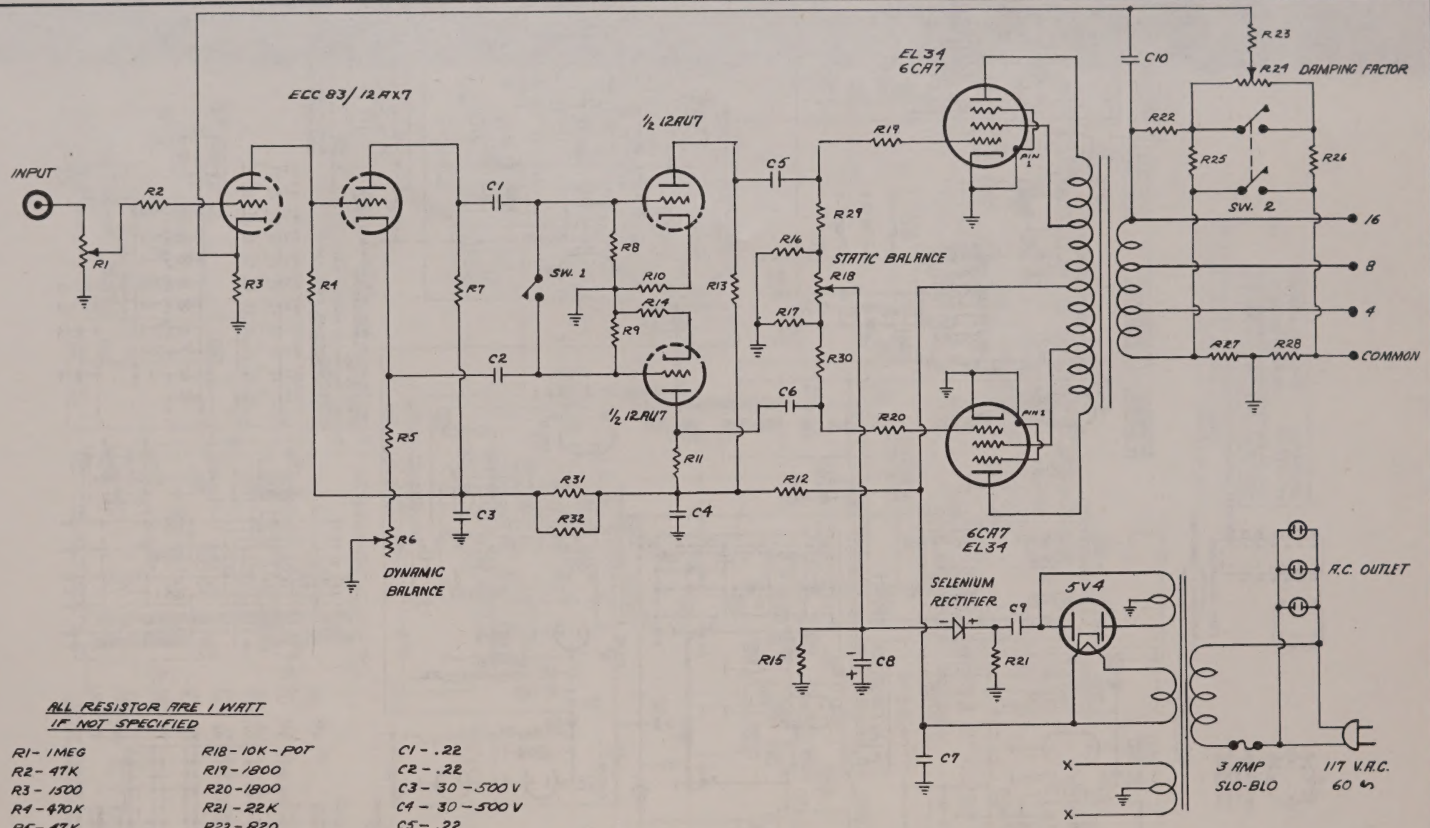
Saba Model 400-10-C




SABA MODEL 400-10-C

Schematic Diagram Courtesy of Saba: Importer A. E. Dufenhorst Company

# BIGG OF CALIFORNIA MODEL "GEORGE GOTT" G50D




ALL RESISTOR ARE 1 WATT IF NOT SPECIFIED

R1 - 1MEG
R2 - 47K
R3 - 1500
R4 - 470K
R5 - 47K
R6 - 100K - POT
R7 - 100K
R8 - 470K
R9 - 470K
R10 - 1800
R11 - 47K - 2W
R12 - 2K - 5W
R13 - 47K - 2W
R14 - 1800
R15 - 39 K
R16 - 100K
R17 - 100K
R18 - 10K - POT
R19 - 1800
R20 - 1800
R21 - 22K
R22 - 820
R23 - 5600
R24 - 1K - POT
R25 - 100
R26 - 100
R27 - 1 Ω - 5W
R28 - 1 Ω - 5W
R29 - 100K
R30 - 100 K
R31 - 39 K
R32 - 39K

C1 - .22
C2 - .22
C3 - 30 - 500 V
C4 - 30 - 500 V
C5 - .22
C6 - .22
C7 - 60 - 500 V
C8 - 40 - 100 V
C9 - .05 - 1000 V
C10 - 22 MMF

SW. 1 - TEST - OPERATE
SW 2 - DAMPING IN-OUT

Schematic Diagram Courtesy of Bigg of California

PHOTOFACT® Folder

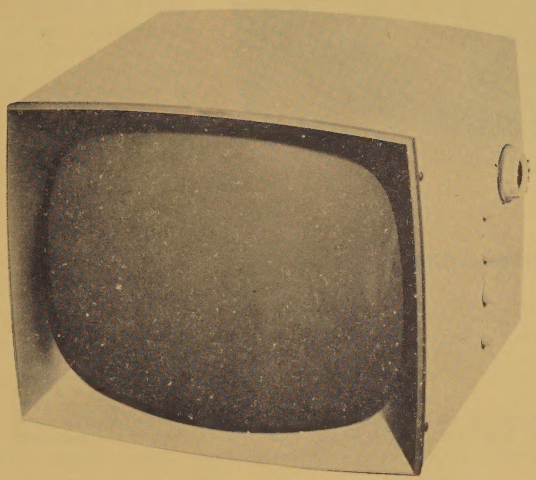
**AIRLINE MODELS**
**WG-4203C, WG-4303C**

## IMPORTANT FILING NOTICE

The TV Folder for this envelope will be found among the first folders in this complete Set of folders.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.

AIRLINE MODELS
WG-4203C, WG-4303C



AIRLINE MODELS
WG-4203C, WG-4303C

MODEL WG-4203C

**HOWARD W. SAMS & CO., INC.** Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

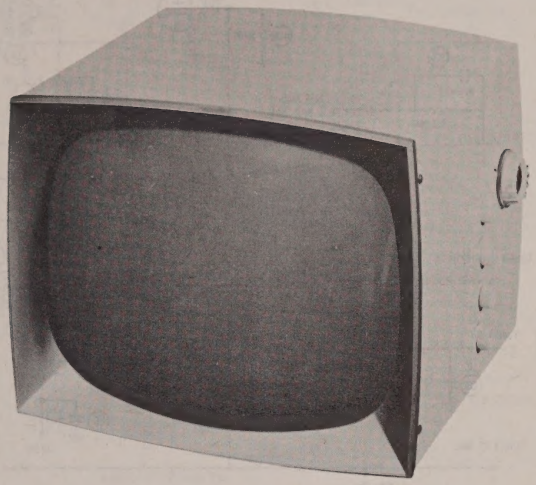
# AIRLINE MODELS WG-4203C, WG-4303C

AIRLINE MODELS WG-4203C, WG-4303C

## CAUTION

ONE SIDE OF AC LINE CONNECTED TO CHASSIS.

Care should be exercised when connecting test equipment or physically contacting chassis. Isolation devices employed by manufacturer should be checked and properly connected before returning receiver to owner.



MODEL WG-4203C

AIRLINE MODELS WG-4203C, WG-4303C

| | |
|---|---|
| TRADE NAME | Airline, Models WG-4203C, WG-4303C |
| SUPPLIER | Montgomery Ward & Co., 619 Chicago Avenue, Chicago, Illinois |
| TYPE SET | Television Receiver |
| TUBES | VHF - Thirteen, UHF - Fourteen |
| POWER SUPPLY | 110-120 Volts AC, 60 Cycle RATING VHF - 110 Watts, 1.1 Amp. @ 117 Volts AC |
| TUNING RANGE | Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier) |

## SERVICING IN THE FIELD

SAFETY GLASS REMOVAL

For picture tube and safety glass cleaning, it is necessary to remove the picture tube. See Disassembly Instructions, "Picture Tube Removal" on Page 16.

FUSE DEVICE

A 4.7Ω fusible resistor is used for low voltage power supply protection. (For location, see "Tube Placement Chart".)

TUNER OSCILLATOR ADJUSTMENT

To touch up the VHF Oscillator, remove Channel Selector and Fine Tuning Knobs.

AGC

No provision is made to vary the AGC on this receiver.

FOCUS

The focus may be varied by the position of a strap on the base of the picture tube.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

Coarse adjustment of the Horizontal Hold is accomplished by the proper setting of the Horizontal Frequency Slug (B1). (For location, see "Tube Placement Chart".)

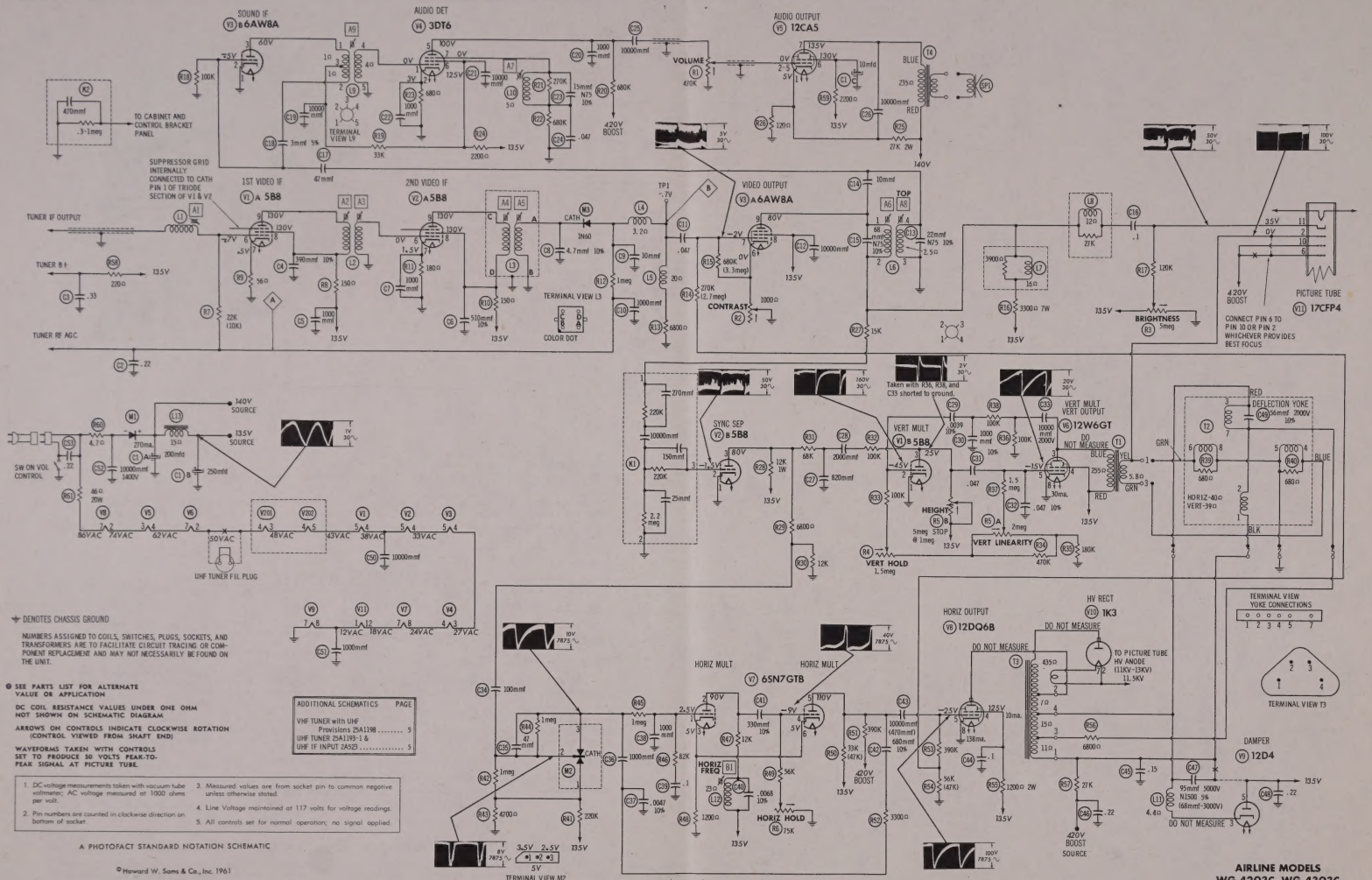
CENTERING

Centering is accomplished by 2 magnetic rings, located behind the yoke, on the neck of the picture tube.

**HOWARD W. SAMS & CO., INC.** Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

KA346R




⏚ DENOTES CHASSIS GROUND

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

WAVEFORMS TAKEN WITH CONTROLS SET TO PRODUCE 50 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE.

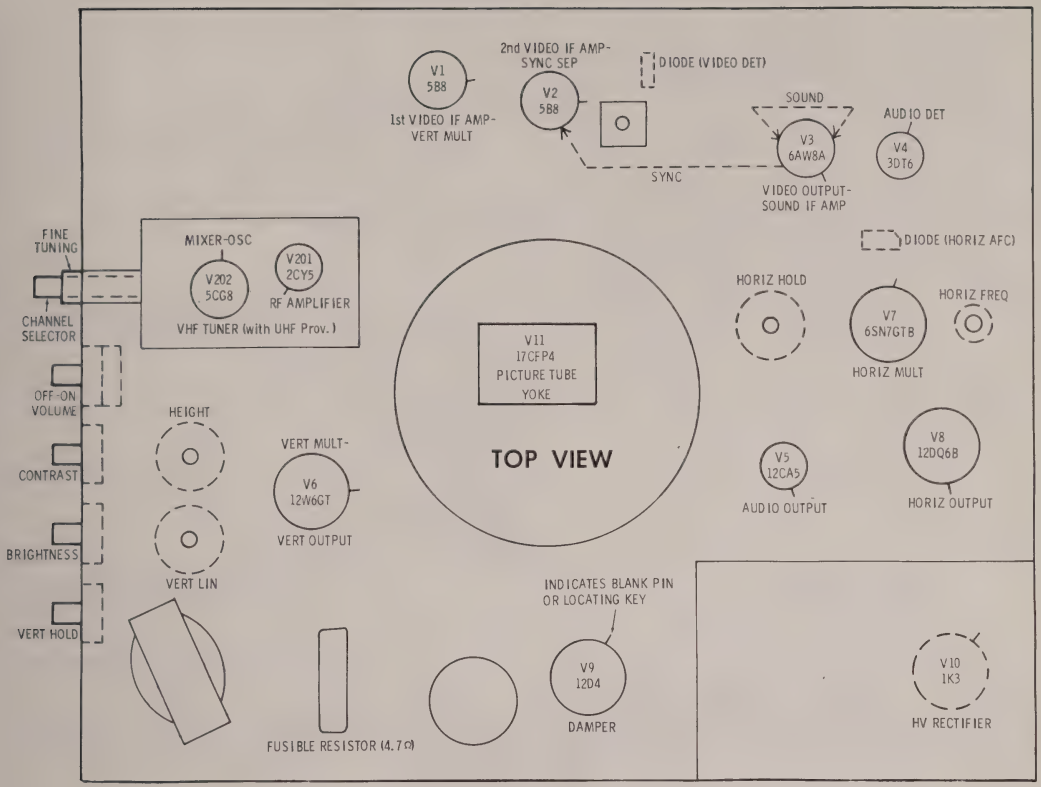
| ADDITIONAL SCHEMATICS | PAGE |
|---|---|
| VHF TUNER with UHF Provisions 25A1198 | 5 |
| UHF TUNER 25A1193-1 & UHF IF INPUT 2A523 | 5 |

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltage measured at 1000 ohms per volt.
2. Pin numbers are counted in clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line Voltage maintained at 117 volts for voltage readings.
5. All controls set for normal operation; no signal applied.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

©Howard W. Sams & Co., Inc. 1961

# TUBE PLACEMENT CHART




AIRLINE MODELS
WG-4203C, WG-4303C

# TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce indicated symptoms. Refer to tube placement chart for location and type of tube.

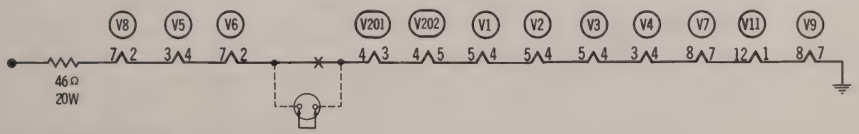
**POWER SUPPLY FAILURE**
No raster, no sound Fusible Resistor (4.7Ω), Rectifiers (B+)

**SWEEP FAILURE**
No raster, has sound V7, V8, V9, V10, V11
No vertical deflection V1, V6
Poor vert. linearity or foldover V1, V6
Poor horiz. linearity or foldover V7, V8, V9
Narrow picture V7, V8, V9, Rectifiers (B+)
Vert. off freq. V1, V6
Horiz. off freq. Diodes (Horiz. AFC), V7

**LOSS OF PICTURE OR SOUND**
No pic, no sound, has raster V1, V2, Diode (Video Det.), V3
No pic, no sound, has snow V201, V202
No pic, has sound, has raster V3, V11
Has pic, no sound V3, V4, V5

**SYNC FAILURE**
No vert. sync V2
No horiz. sync V2
No vert. or horiz. sync V2

This receiver employs tubes used in a series filament network, an open filament in any tube will cause the set to be inoperative. (See circuit below.)




FOLDER 1

# ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

USE AN ISOLATION TRANSFORMER TO PROTECT THE TEST EQUIPMENT.
The high voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested alignment tools ..... General Cement #8282, 8606, 8606L or 9295
Walsco #2543, 2544, or 2545

VIDEO IF ALIGNMENT

Connect the negative lead of a 3 volt bias supply to point (A). Positive to chassis.
Short the antenna terminals together but not to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.

| | DUMMY ANTENNA | SWEEP GENERATOR COUPLING | SWEEP GENERATOR FREQUENCY | MARKER GENERATOR FREQUENCY | CHANNEL | CONNECT SCOPE | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 1. | Direct | High side to ungrounded tube shield floating over mixer-osc. tube (V202). Low side to chassis. | 44.0MC (10MC Swp) | 42.75MC 45.75MC | Any non-interfering channel | Vert. Amp. thru detector (Fig. 1) to pin 9 (plate) of 5B8 (V1). Low side to chassis. | Mixer Plate Coil & A1 | Adjust for maximum gain and symmetry of response similar to Fig. 2 with markers as shown. |
| 2. | 1000mmf Ceramic Capacitor | High side to pin 6 (grid) of 5B8 (V1). Low side to chassis. | " | " | " | Vert. Amp. thru detector (Fig. 1) to pin 9 (plate) of 5B8 (V2). Low side to chassis. | A2, A3 | " |
| 3. | " | High side to pin 6 (grid) of 5B8 (V2). Low side to chassis. | " | " | " | Vert. Amp. thru 10K to point (B). Low side to chassis. (Across video det. load). | A4, A5 | " |
| 4. | Direct | High side to ungrounded tube shield floating over mixer-osc. tube (V202). Low side to chassis. | " | " | " | " | | Retouch Mixer Plate Coil and A1 thru A5 as required for response similar to Fig. 3. Remove bias and replace V202 in its socket. |

SOUND IF ALIGNMENT

Set the contrast control fully clockwise.

| | DUMMY ANTENNA | SWEEP GENERATOR COUPLING | SWEEP GENERATOR FREQUENCY | MARKER GENERATOR FREQUENCY | CHANNEL | CONNECT SCOPE | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 5. | 1000mmf Ceramic Capacitor | High side to point (B). Low side to chassis. | Not used | 4.5MC (400~ 30% AM) | Any non-interfering channel | Vert. Amp. thru detector (Fig. 4) to pin 11 (cathode) of picture tube. Low side to chassis. | A6 | Turn A6 and A8 almost out of coil forms. Then adjust A6 for MINIMUM scope indication. |
| 6. | " | " | 4.5MC (15KC Swp) | Not used | " | Across speaker voice coil | A7, A8, A9 | Use only enough sweep generator output to provide a usable pattern on scope. Turn A7 fully clockwise, then counter clockwise for maximum scope indication. Adjust A8 and A9 for maximum scope indication. Remove test equipment and tune in a local TV station. Retouch A7 for MINIMUM buzz. |

## TUNER ALIGNMENT INSTRUCTIONS PAGE 6

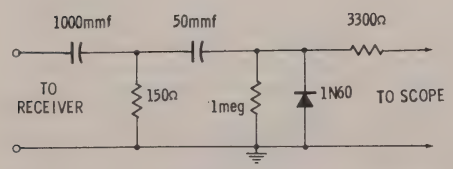


FIG. 1

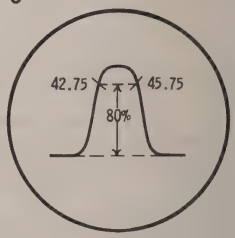


FIG. 2

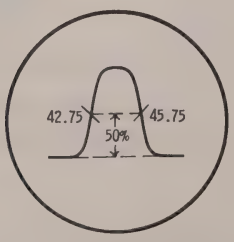


FIG. 3

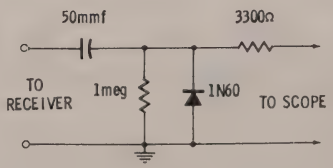
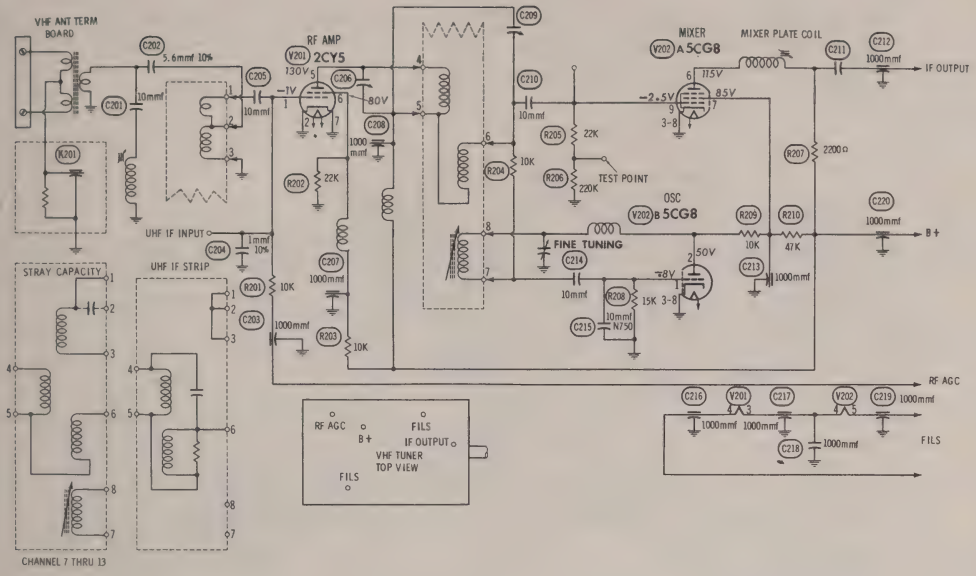


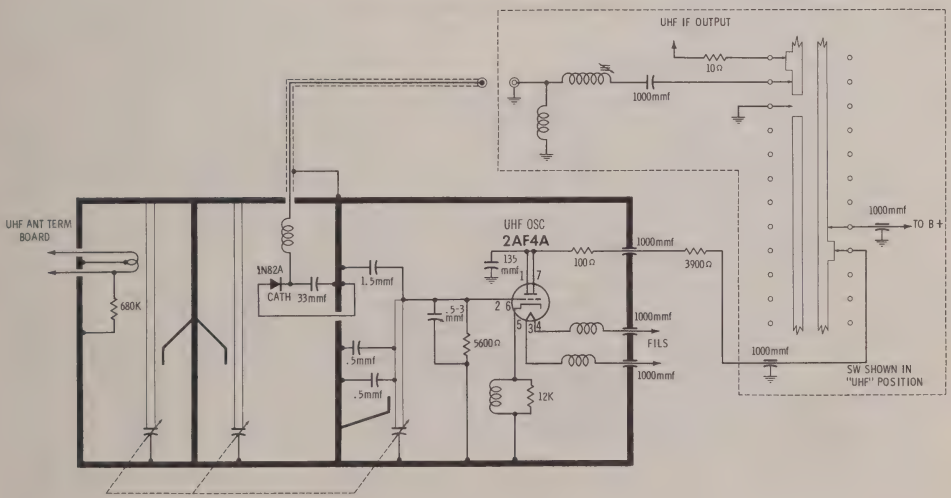
FIG. 4




A PHOTOFACT STANDARD NOTATION SCHEMATIC

© Howard W. Sams & Co., Inc. 1961

## VHF TUNER with UHF PROVISIONS 25A1198




A PHOTOFACT STANDARD NOTATION SCHEMATIC

© Howard W. Sams & Co., Inc. 1961

## UHF TUNER 25A1193-1 & UHF IF INPUT 2A523

SET 518 FOLDER 1

# TUNER PARTS LIST AND DESCRIPTIONS

## VHF—UHF PROVISIONS

### TUBES

| • GENERAL ELECTRIC • RAYTHEON • SYLVANIA • | | | | | |
|---|---|---|---|---|---|
| ITEM No. | USE | TYPE | ITEM No. | USE | TYPE |
| V201 | RF Amp. | 2CY5 | V202 | Mixer · Osc. | 5CG8 |

### FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
| C201 | 10 | | NPO-DI 10 | DTZ-10 | C10Q1C | CCTO-100 | CNO-410 | 10TCC-Q10 |
| C202 | 5.6 10% | | | | | | | 10TCC-V56 |
| C203 | 1000 | | EF-001 | MFT-1000 | | CCF-102 | CT280A | |
| C204 | 1 10% | | NPO-SI 1.0 | TCZ-1 | | | CNO-510 | 10TCC-V10 |
| C205 | 10 | | NPO-DI 10 | DTZ-10 | C10Q1C | CCTO-100 | CNO-410 | 10TCC-Q10 |
| C206 | | | | | | | | |
| C207 | 1000 | | EF-001 | MFT-1000 | | CCF-102 | CT280A | |
| C208 | 1000 | | EF-001 | MFT-1000 | | CCF-102 | CT280A | |
| C209 | | | | | | | | |
| C210 | 10 | | NPO-DI 10 | DTZ-10 | C10Q1C | CCTO-100 | CNO-410 | 10TCC-Q10 |
| C211 | | | | | | | | |
| C212 | 1000 | | EF-001 | MFT-1000 | | CCF-102 | CT280A | |
| C213 | 1000 | | EF-001 | MFT-1000 | | CCF-102 | CT280A | |
| C214 | 10 | | NPO-DI 10 | DTZ-10 | C10Q1C | CCTO-100 | CNO-410 | 10TCC-Q10 |
| C215 | 10 N750 | | N750-DI 10 | DTN-10 | C10Q1U | CCTN-100 | CN7-410 | 10TCU-Q10 |
| C216 | 1000 | | EF-001 | MFT-1000 | | CCF-102 | CT280A | |
| C217 | 1000 | | EF-001 | MFT-1000 | | CCF-102 | CT280A | |
| C218 | 1000 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C219 | 1000 | | EF-001 | MFT-1000 | | CCF-102 | CT280A | |
| C220 | 1000 | | EF-001 | MFT-1000 | | CCF-102 | CT280A | |

### RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

| ITEM No. | RATING | REPLACEMENT DATA | | | ITEM No. | RATING | REPLACEMENT DATA | | |
|---|---|---|---|---|---|---|---|---|---|
| | | IRC PART No. | WORKMAN TV PART No. | REMARKS | | | IRC PART No. | WORKMAN TV PART No | REMARKS |
| R201 | 10K | | | | R206 | 220K | | | |
| R202 | 22K | | | | R207 | 2200Ω | | | |
| R203 | 10K | | | | R208 | 15K | | | |
| R204 | 10K | | | | R209 | 10K | | | |
| R205 | 22K | | | | R210 | 47K | | | |

### COMPONENT COMBINATIONS

| ITEM No. | USE | DESCRIPTION | PART No. | REPLACEMENT DATA |
|---|---|---|---|---|
| K201 | Antenna Filter | | | |

# TUNER ALIGNMENT INSTRUCTIONS

## VHF—UHF PROVISIONS

VHF OSCILLATOR ALIGNMENT

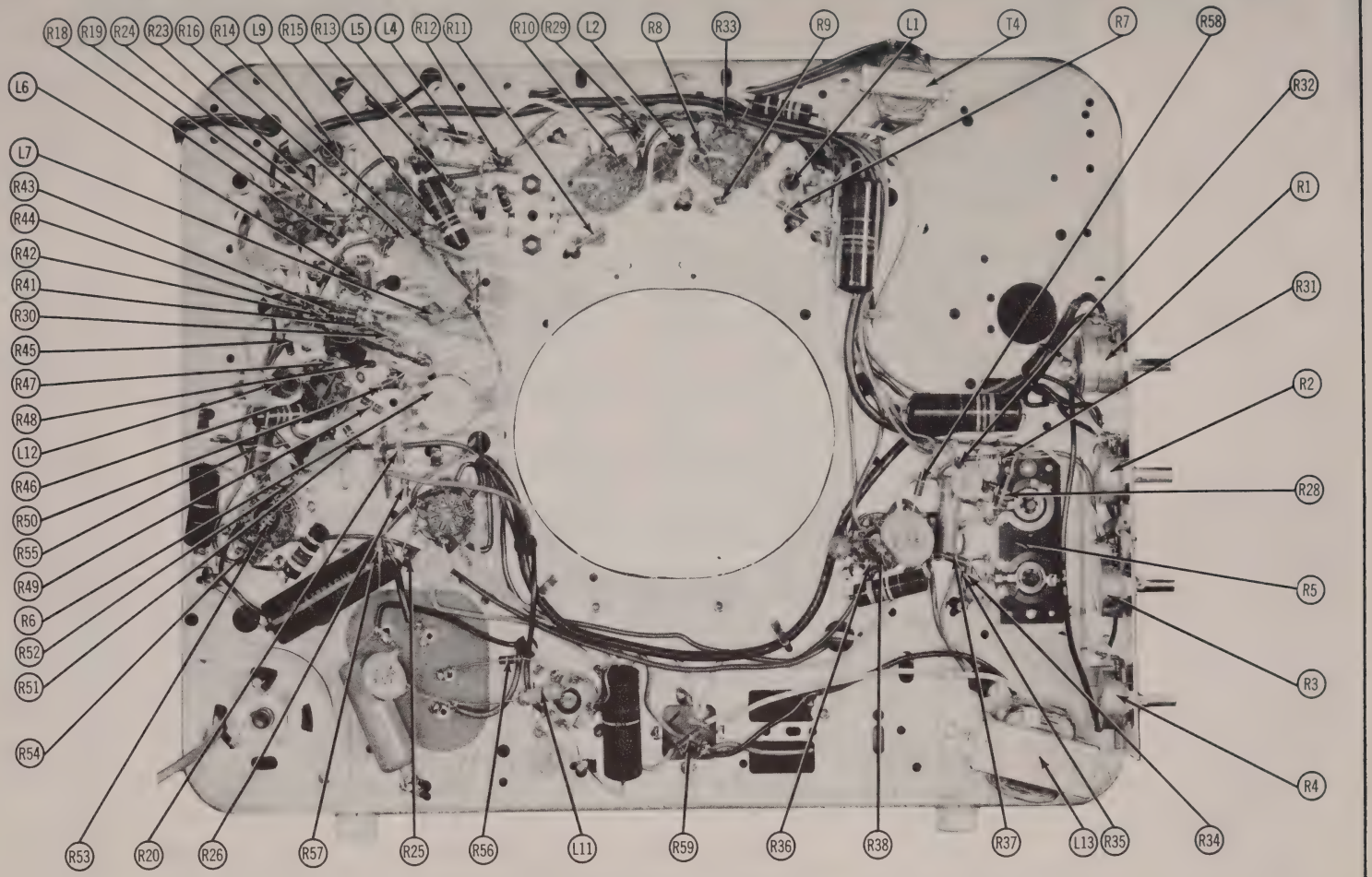
The individual channel adjustment screws are accessible one at a time, thru a hole in the front of the tuner, as the Channel Selector is rotated. Set the Fine Tuning to the center of its range and switch to channel to be adjusted and adjust for best picture and sound.

VHF RF AND MIXER ALIGNMENT

This portion of the tuner has been properly aligned at the factory and is very stable. Alignment of this portion should not be attempted in the field.

UHF TUNER ALIGNMENT

This portion of the tuner has been properly aligned at the factory and is very stable. Alignment of this portion should not be attempted in the field.




CHASSIS BOTTOM VIEW - RESISTOR & INDUCTOR IDENT.

# PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No | GENERAL ELECTRIC • RAYTHEON • SYLVANIA USE | TYPE |
|---|---|---|
| V1 | 1st Video IF Amp. - Vert. Mult. | 5B8 |
| V2 | 2nd Video IF Amp. - Sync Sep. | 5B8 |
| V3 | Vidio-Output - Sound IF Amp | 6AW8A |
| V4 | Audio Det. | 3DT6 |
| V5 | Audio Output | 12CA5 |
| V6 | Vert. Mult. - Vert. Output | 12W6GT |
| V7 | Horiz. Mult. | 6SN7GTB |
| V8 | Horiz. Output | 12DQ6B |
| V9 | Damper | 12D4 |
| V10 | HV Rectifier | 1K3 |

## PICTURE TUBE

| ITEM No | REPLACEMENT DATA: AIRLINE PART No | GENERAL ELECTRIC PART No | RCA PART No | RAYTHEON PART No | SYLVANIA PART No | NOTES |
|---|---|---|---|---|---|---|
| V11 | 17CFP4 | 17CFP4 ① | 17CFP4 ① | 17CFP4 ① | 17CFP4 ② | ① Aluminized ② Silver Screen "85" |

## ELECTROLYTIC CAPACITORS

| ITEM No | RATING: CAP | VOLT | AIRLINE PART No | AEROVOX PART No | CORNELL DUBILIER PART No | MALLORY PART No | PYRAMID PART No | SPRAGUE PART No * | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| C1A | ≋200 | 200 | 45X445 | AFHS-13-90 | - XP3252 | FP316-8 | TMD-88 | TVL8-3490 * | |
| B | ≋250 | 200 | | | - BR3345 | | TD-10-250 | | |
| C | ≋20 | 200 | | | | | | | |

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

## FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

| ITEM No. | RATING | | | REMARKS | REPLACEMENT DATA: AEROVOX PART No. | CENTRALAB PART No. | CORNELL DUBILIER PART No. | FUSENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|---|---|
| C2 | .22 | 200V | | | P388N-22 | CUB2P22 | 2DP-4-224 | GEM-2022 | 2TM-P22 | |
| C3 | .33 | 200V | | | P284N-33 | DPM34P33 | 2DP-5-334 | GEM-2033 | 2PS-P33 | |
| C4 | 390 | | 10% | | DI-390 | DD-391 | CCD-391 | GP339 | 10TS-T39 | |
| C5 | 1000 | | 10% | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C6 | 820 | | 10% | | DI-820 | DD-821 | SR5T81 | CCD-501 | GP350 | 10TS-T50 |
| C7 | 1000 | | | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C8 | 4.7 | | 10% | | NPO-SI 4.7 | TCZ-4R7 | C10V47C | CCTO-4R7 | CNO-547 | 10TCC-V47 |
| C9 | 10 | | | | NPO-SI 10 | TCZ-10 | C10Q1C | CCTO-100 | CNO-510 | 10TCC-Q10 |
| C10 | 1000 | | | | BPD-001 | DD-103 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C11 | .047 | 200V | | | P284N-047 | DD-503 | CUB2B47 | 4DP-3-473 | GEM-4147 | 2TM-S47 |
| C12 | 10000 | | | | BPD-001 | DD-103 | BYA10D1 | CCD-103 | B-110 | 5HK-S10 |
| C13 | 33 | N75 | 10% | | | | | | | |
| C14 | 10 | | | | NPO-SI 10 | TCZ-10 | C10Q1C | CCTO-100 | CNO-410 | 10TCC-Q10 |
| C15 | 68 | N75 | 10% | | | | | | | |
| C16 | .1 | 200V | | | P388N-1 | DF-104 | CUB2P1 | 2DP-3-104 | GEM-201 | 2TM-P10 |
| C17 | 47 | | | | SI 47 | LI0Q47 | CCD-470 | GP470 | GP447 | 10TS-Q47 |
| C18 | 3 | | 5% | | NPO-SI 3.0 | TCZ-3R3 | C10V3C | CCTO-3R3 | CNO-533 | 10TCC-V33 |
| C19 | 10000 | | | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C20 | 1000 | | | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C21 | 10000 | | | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C22 | 1000 | | | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C23 | .15 | N75 | 10% | | | | | | | |
| C24 | .047 | 200V | | | P388N-047 | DD-503 | CUB2B47 | 4DP-3-473 | GEM-4147 | 2TM-S47 |
| C25 | 10000 | | | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C26 | 10000 | | | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C27 | 820 | | | | BPD-821 | DD-821 | BYA10T82 | CCD-821 | B-382 | 10TS-T82 |
| C28 | 2000 | | | | BPD-002 | DD-202 | BYA10D2 | CCD-202 | B-220 | 5HK-D20 |
| C29 | .0039 | 400V | 10% | | P684CM-0039 | DD-392 | DPM5D39 | 6DP-1-392 | GEM-1624 | 6PS-D39 |
| C30 | 1000 | | 10% | | DI-1000 | DD-102 | SR5D1 | CCD-102 | GP210 | 10TS-D10 |
| C31 | .047 | 200V | | | P388N-047 | DD-503 | CUB2B47 | 4DP-3-473 | GEM-4147 | 2TM-S47 |
| C32 | .047 | 200V | 10% | | V84C2847-10% | | PM2847 | 4DP-3-473 | GEM-4815 | 2TM-S47 |
| C33 | 1000 | 1000V | | | | | | | 2HV-10 | 20HB-S7 |
| C34 | 100 | | | | SI 100 | DI-101 | LI0T1 | CCD-101 | GP340 | 10TS-T10 |
| C35 | 47 | | | | SI 47 | DI-470 | LI0Q47 | CCD-470 | GP447 | 10TS-Q47 |
| C36 | 1000 | | | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C37 | .0047 | 400V | 10% | | V84C4D47-10% | | PM6D47 | 6DP-1-472 | GEM-1624? | 6TM-D47 |
| C38 | 1000 | | | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C39 | .1 | 200V | | | P388N-1 | DF-104 | CUB2P1 | 2DP-3-104 | GEM-201 | 2TM-P10 |
| C40 | .0068 | 400V | 10% | | V84C4D68-10% | | PM6D68 | 6DP-1-682 | GEM-1628 | 6TM-D68 |
| C41 | 330 | | 10% | | SR3T33 | | SR3T33 | CM-19D-331K | MC3F40 | MS-33F |
| C42 | 680 | | 10% | | 1469-00068 | | SR3T68 | CM-19D-681K | MC3F49 | MS-36F |
| C43 | .0022 | | | 472Z ① | BPC-22 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C44 | .1 | 200V | | | P388N-1 | DF-104 | CUB2P1 | 2DP-3-104 | GEM-201 | 2TM-P10 |
| C45 | .5 | 600V | | | P88N-5 | | PM5P5 | 6DP-5-154 | GEM-6015 | 6TM-P15 |
| C46 | .22 | 600V | | | P388N-22 | | CUB6P22 | 6DP-5-224 | GEM-6022 | 6TM-P22 |
| C47 | 25 | 3000V | N500 5% | (68-3000V ①) | | | | | | |
| C48 | .22 | 200V | | | P388N-22 | | CUB2P22 | 2DP-4-224 | GEM-2022 | 2TM-P22 |
| C49 | .56 | 2000V | 10% | | | | EVA20P56 | KCM-20-560K | 2DY-456 | |
| C50 | .0100 | | | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C51 | .0056 | | | | BPD-001 | DD-103 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C52 | .0300 | 1400V | | | DAC-27 | DD6E-103 | HVD16S1 | HVD-3-103 | LAC-110 | BL-S10 |
| C53 | .22 | 400V | | | P488N-22 | | CUB4P22 | 4DP-5-224 | GEM-4022 | 4TM-P22 |

† Alternate Value * Not normally in distributor's stock. Available thru distributor on order to manufacturer.

## CONTROLS

| ITEM No | RATING: RESIST ANCE | WATTS | AIRLINE PART No | REPLACEMENT DATA: CENTRALAB PART No | CLAROSTAT PART No | CTS-IRC PART No | MALLORY PART No | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| R1A | 4.5Ω | ↓ | 40X444 | E3EC2A | A47-500K-2 | Q10-133 | TA53A | Volume |
| B | Shaft | | | Not Req. | FS-3 | Not Req. | Not Req. | |
| C | Switch | | | Not Req. | SWE-12 | 76-1 | US-26 | Power Off-On |
| R2 | 40Ω | ↓ | 40X439 | B-508 | | Q9-108 | ⑤ | Contrast |
| R3A | 5meg | ↓ | 40X440 | B-87 | A47-5meg-S | Q11-141 | TA56L | Brightness |
| B | Shaft | | | Not Req. | FS-3 | Not Req. | Not Req. | |

## CONTROLS (cont)

| ITEM No | RATING: RESIST ANCE | WATTS | AIRLINE PART No | REPLACEMENT DATA: CENTRALAB PART No | CLAROSTAT PART No | CTS-IRC PART No | MALLORY PART No | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| R4A | 1.5meg | ↓ | 40X441 | B-742 | A47-1.5meg-S | Q11-138 | TA155L | Vert. Hold |
| B | Shaft | | | Not Req. | FS-3 | Not Req. | Not Req. | |
| R5A | 2meg | ↓ | 40X443 | TT-75 | B47-2meg-S | B11-139 | PTA38L | Vert. Linearity |
| B | Shaft | | | Not Req. | Not Req. | TM6 | Not Req. | |
| | 5meg | ↓ | | TT-86 * | B47-5meg-S | BLC4 * | PTA56L * | Height |
| | Imeg Stop | | | | | | | |
| R6A | 75K | ↓ | 40X442 | TT-35 | B47-100K-S | B11-126 | PTA15L | Horiz. Hold |
| B | Shaft | | | Not Req. | Not Req. | TM4 | Not Req. | |

* Use 1meg Resistor in series with right hand terminal, viewed shaft end terminals down.

## RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

| ITEM No. | RATING | REPLACEMENT DATA: IRC PART No. | WORKMAN TV PART No. | REMARKS |
|---|---|---|---|---|
| R7 | 22K | | | * (10K) |
| R8 | 150Ω | | | |
| R9 | 56Ω | | | |
| R10 | 150Ω | | | |
| R11 | 180Ω | | | |
| R12 | 1meg | | | |
| R13 | 6800Ω | | | |
| R14 | 270K | | | *2. 7meg |
| R15 | 680K | | | *3. 3meg |
| R16 | 3300Ω 7W | PW10-3300Ω | 7W SQ 3300Ω | #43X393 |
| R17 | 120K | | | |
| R18 | 100K | | | |
| R19 | 33K | | | |
| R20 | 680K | | | |
| R21 | 270K | | | |
| R22 | 680K | | | |
| R23 | 680Ω | | | |
| R24 | 2200Ω | | | |
| R25 | 47K 2W | | | |
| R26 | 120Ω | | | |
| R27 | 18K | | | |
| R28 | 12K 1W | | | |
| R29 | 6800Ω | | | |
| R30 | 12K | | | |
| R31 | 68K | | | |
| R32 | 100K | | | |
| R33 | 100K | | | |
| R34 | 470K | | | |

| ITEM No. | RATING | REPLACEMENT DATA: IRC PART No. | WORKMAN TV PART No. | REMARKS |
|---|---|---|---|---|
| R35 | 180K | | | |
| R36 | 100K | | | |
| R37 | 1.5meg | | | |
| R38 | 100K | | | |
| R39 | 680Ω | | | |
| R40 | 680Ω | | | |
| R41 | 220K | | | |
| R42 | 1meg | | | |
| R43 | 4700Ω | | | |
| R44 | 1meg | | | |
| R45 | 1meg | | | |
| R46 | 82K | | | |
| R47 | 12K | | | |
| R48 | 1200Ω | | | |
| R49 | 56K | | | |
| R50 | 33K | | | * (47K) |
| R51 | 390K | | | |
| R52 | 3300Ω | | | |
| R53 | 390K | | | |
| R54 | 56K | | | * (47K) |
| R55 | 12000Ω 2W | | | |
| R56 | 6800Ω | | | |
| R57 | 27K | | | |
| R58 | 220Ω | | | |
| R59 | 2200Ω | | | |
| R60 | 4.7Ω ① | FH 4.7Ω | FZ 4.7 | #43X398 |
| R61 | 45Ω 20W | | | #43X311 |

* Alternate Value # Airline Part Number.

## COILS (RF-IF)

| ITEM No. | USE | REPLACEMENT DATA: AIRLINE PART No. | Merit PART No. | Miller PART No. | Stancor PART No. | NOTES |
|---|---|---|---|---|---|---|
| L1 | 1st Video IF | 9A2427 | TV-131 | 6226 | RTC-8626 | |
| L2 | 2nd Video IF | 9A2444 | | | | |
| L3 | 3rd Video IF | 9A2428 | | | | |
| L4 | RF Choke (2uh) | 9A2431 | BC-563 | 4606 | RTC-8517 | |
| L5 | Peaking (360uh) | 36A34 | TV-140 | 6134 | RTC-8578 | |
| L6A | 4.5MC Trap | 9A2425 | TV-120 | 1482 | RTC-8056 | |
| B | 1st Sound IF | | | | | |
| L7 | Peaking (220uh) | 36A38 ① | TV-197 ▲ | 6154 ▲ | RTC-8586 ▲ | ▲ Parallel with 3900Ω Resistor. |
| L8 | Peaking (150uh) | 36A43 ② | TV-196 * | 6120 * | RTC-8575 * | * Parallel with 27K Resistor. |
| L9 | 2nd Sound IF | 9A2429 | | | | ① Wound on 3900Ω Resistor. |
| L10 | Quadrature | 9A2426 | TV-121 | 1480 | RTC-8605 | ② Wound on 27K Resistor. |
| L11 | RF Choke (4.7uh) | 9A2432 ③ | SW-631 | 9320-22 | RTC-8505 | ③ IRC Part #CLA |

## COILS (SWEEP CIRCUITS)

| ITEM No. | USE | REPLACEMENT DATA: AIRLINE PART No. | Merit PART No. | Miller PART No. | Rogers PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. |
|---|---|---|---|---|---|---|---|---|
| L12 | Horiz. Stabilizer | 9A2430 | TV-163 | 6210 | RC110 | RTC-8622 | HS-5 | WLC-3 |

## FILTER CHOKE

| ITEM No. | RATINGS: CURRENT (Measured) | DC RES. | INDUCTANCE @ CURRENT | REPLACEMENT DATA: AIRLINE PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| L13 | .235A | 15Ω | .4 Hy. 1000 ~ | 52X102 | | C-2343 | | C-27X | |

## TRANSFORMERS (SWEEP CIRCUITS)

| ITEM No | USE | REPLACEMENT DATA: AIRLINE PART No | Merit PART No | Rogers PART No. | Stancor PART No | Thordarson PART No. | Triad PART No | NOTES |
|---|---|---|---|---|---|---|---|---|
| T1 | Vert. Output | 51X193 | A-2815 ① | | VO-109 ① | 26S75 ① | A-117X | |
| T2 | Yoke (Horiz. 25MH) (90°) (Vert. 38MH) Rear Cover and Centering Device | 9A2423 | MDF-92 ② | PCM2045 ② | DY-16A ② | Y-16 ② | (4Y-45 & NW19) | |
| | Horiz. Output | 2A499 | | | | | YC-112 | |
| T3 | | 53X372 | HVO-134 * | | HO-297 * | FLY-146 * | D-124 * | |

① Drill new mounting hole(s); use 6 to 1 turns ratio.
② Use original rear cover, centering device and yoke damping network, if necessary.

## *HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

| | ORIGINAL TERMINAL CONNECTIONS | Merit Replacement Connections | Rogers Replacement Connections | Stancor Replacement Connections | Thordarson Replacement Connections | Triad Replacement Connections |
|---|---|---|---|---|---|---|
| | 2 | 2 | | 2 | 2 | 2 |
| | 4 | 4 | | 4 | 4 | 4 |
| | 3 | 3 | | 3 | 3 | 3 |
| | 1 | 1 | | 1 | 1 | 1 |
| Special Notes → | | ③ | | ③ | ③ | ③ |

③ Remove one turn from filament winding.

## TRANSFORMER (AUDIO OUTPUT)

| ITEM No. | IMPEDANCE: PRI. | SEC. | REPLACEMENT DATA: AIRLINE PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|
| T4 | 4000Ω | 3-4Ω | 51X192 | A-3026 | A-3877 | 24S48 | S-41X | |

## SPEAKER

| ITEM No. | TYPE: SIZE | FIELD | V. C. IMP. | REPLACEMENT DATA: AIRLINE PART No. | QUAM PART No. | NOTES |
|---|---|---|---|---|---|---|
| SP1 | 4" | PM | 3-4Ω | 12AB60-3 | 4A06 | |

## COMPONENT COMBINATIONS

| ITEM No. | USE | DESCRIPTION | AIRLINE PART No. | REPLACEMENT DATA |
|---|---|---|---|---|
| K1 | Sync Sep. Grid | 25mmf, 150mmf, 270mmf, 1200mmd, 220K, 230K, 2.2meg | 76X14 | |
| K2 | Isolation | 470mmf, 3-imeg | 76X18 | Centralab RC-47I<br>Sprague AC1-1 |

## POWER RECTIFIERS

| ITEM No. | RATING: CURRENT (Measured) | REPLACEMENT DATA: AIRLINE PART No. | RCA PART No. | SARKES TARZIAN PART No. | SYLVANIA PART No. | NOTES |
|---|---|---|---|---|---|---|
| M1 | .270A | 66X33 * | 1N1763 * | 40H * | SR500 * | * Silicon Type |

## SIGNAL DIODES

| ITEM No. | ORIG. TYPE | REPLACEMENT DATA: AIRLINE PART No. | GENERAL ELECTRIC PART No. | RAYTHEON PART No. | SYLVANIA PART No. | NOTES |
|---|---|---|---|---|---|---|
| M2 | | 66X21 * | 6GC1 * | | | * Selenium Diode (Common Cathode Type) |
| M3 | 1N60 * | | | 1N60 | 1N60 | * Alternate CK-706A |

## MISCELLANEOUS

| ITEM No. | PART NAME | AIRLINE PART No. | NOTES |
|---|---|---|---|
| M4 | Tuner | 25A1198 | VHF with UHF Provisions |
| | Tuner | 25A1193-1 | UHF |

## CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

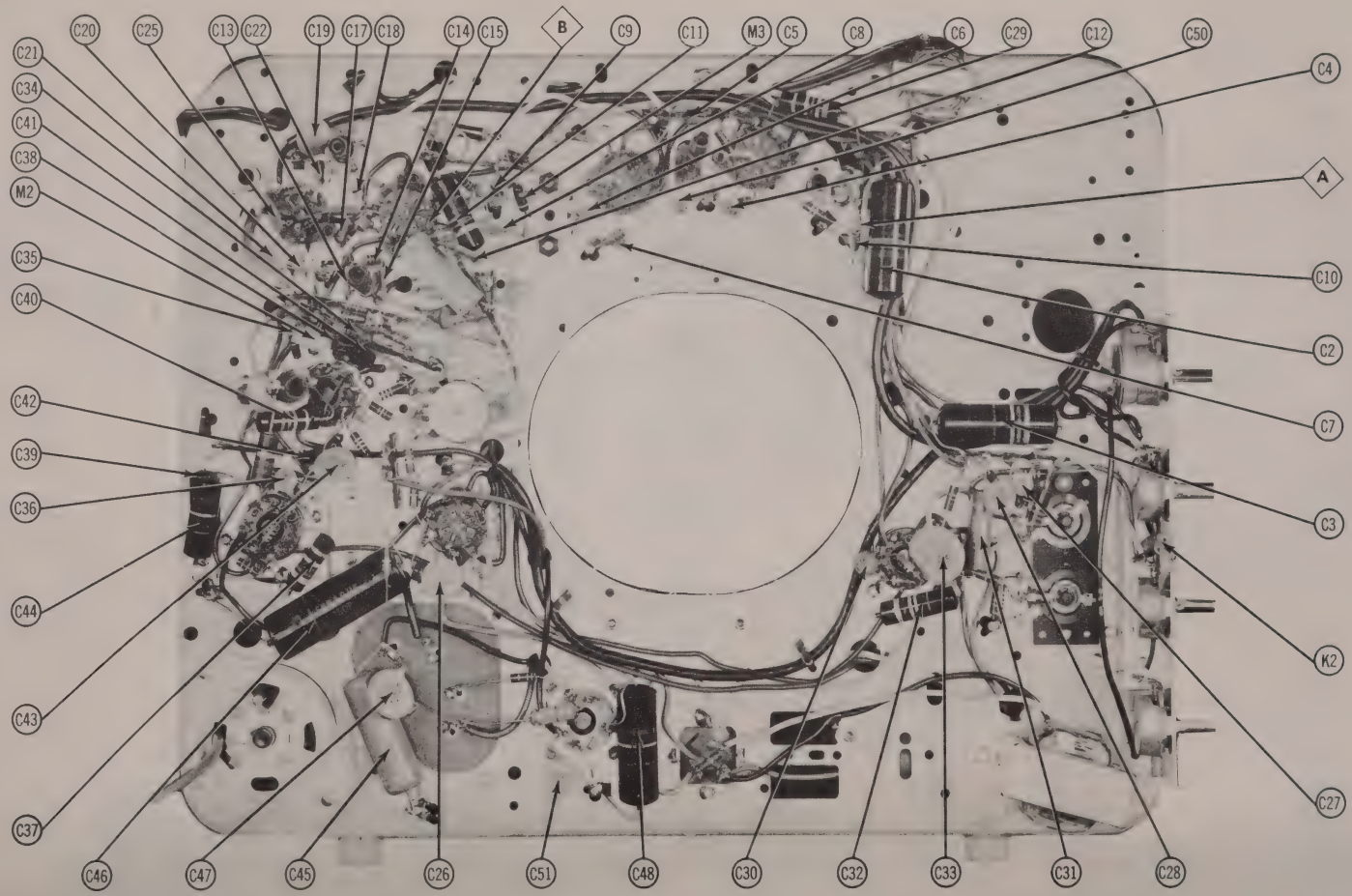
| NAME | PART NO. | DESCRIPTION |
|---|---|---|
| Safety Glass | 17X198-2 | |
| Escutcheon | 4X1395-4 | |
| Knob | 10A935-2 | Channel Selector |
| Knob | 10A937-2 | Fine Tuning |
| Knob | 10A935 | Brightness, Vert. Hold, Contrast, Off-On-Volume |
| Knob | 10A998-2 | UHF Tuning |
| Knob | 10A999-2 | UHF Indicator |
| Cabinet | 8-38A1469 | |

## WIRING DATA

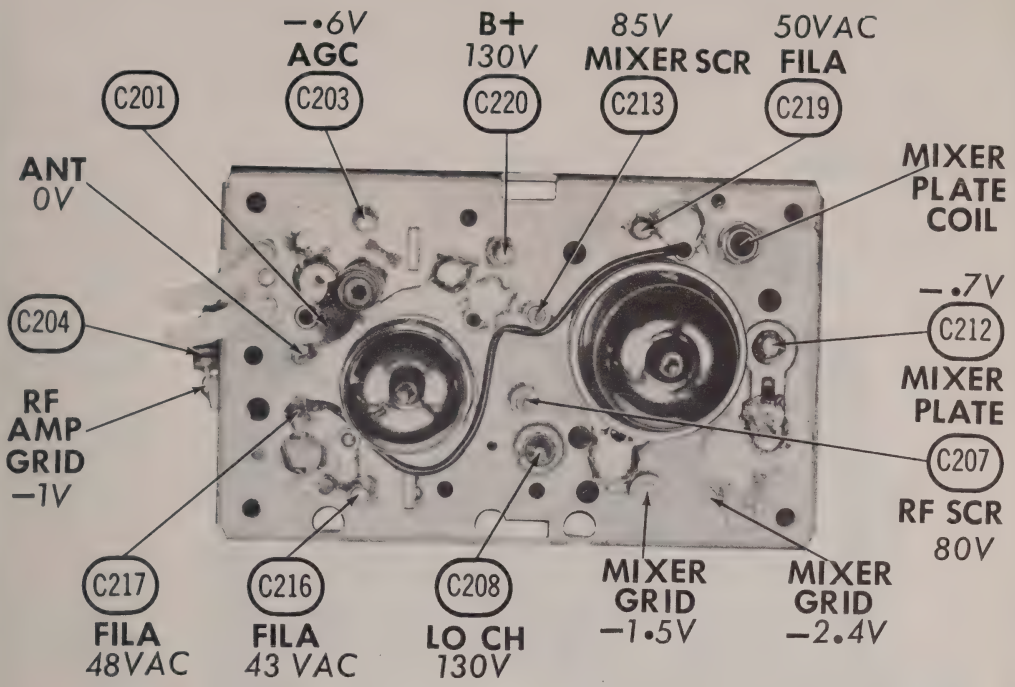
| | |
|---|---|
| High Voltage Lead | Use BELDEN No. 8869 |
| Shielded Hook-up Wire | Use BELDEN No. 8885 (Single Conductor)<br>8738 (Two Conductor) |
| General-use Unshielded Hook-up Wire | Use BELDEN No. 8530 (Solid) Available in Ten Colors<br>8524 (Stranded) Available in Ten Colors |
| Power Cord (Interlock Type) | Use BELDEN No. 8874 |
| 300Ω Tuner Input Lead | Use BELDEN No. 8225 |
| 300Ω Antenna Lead-in | Use BELDEN No. 8230 or 8275 |
| Antenna Rotor Cable | Use BELDEN No. 8464 (Flat) or 8484 (Round) - 4 Conductor<br>8485 (Round) - 5 Conductor<br>8488 (Round) - 8 Conductor |

AIRLINE MODELS WG-4203C, WG-4303C

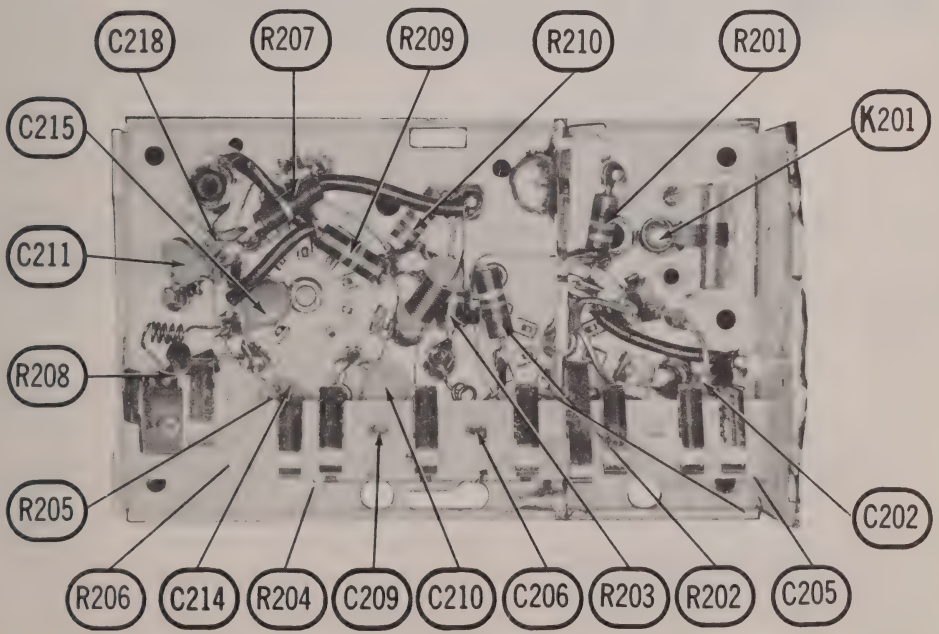
FOLDER 1



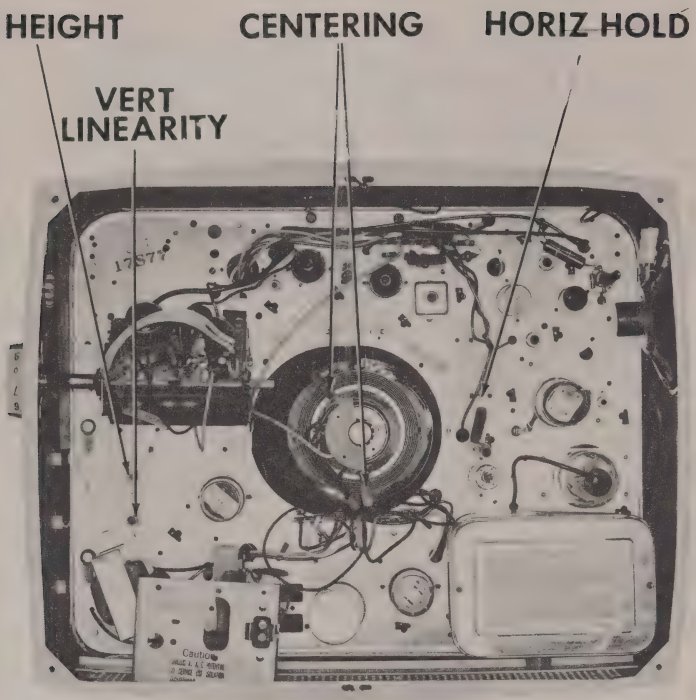

CHASSIS BOTTOM VIEW - CAPACITOR, ALIGN., & MISC. IDENT.




VHF TUNER with UHF PROVISIONS 25A1198 - TOP VIEW




VHF TUNER with UHF PROVISIONS 25A1198 - BOTTOM VIEW




CABINET—REAR VIEW

## HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Set the Horizontal Hold to the center of its range.

Tune in a TV station and adjust the Horizontal Frequency Slug (B1) until the picture synchronizes horizontally.

Proper adjustment is indicated when it is possible to switch from one channel to another without the picture losing sync.

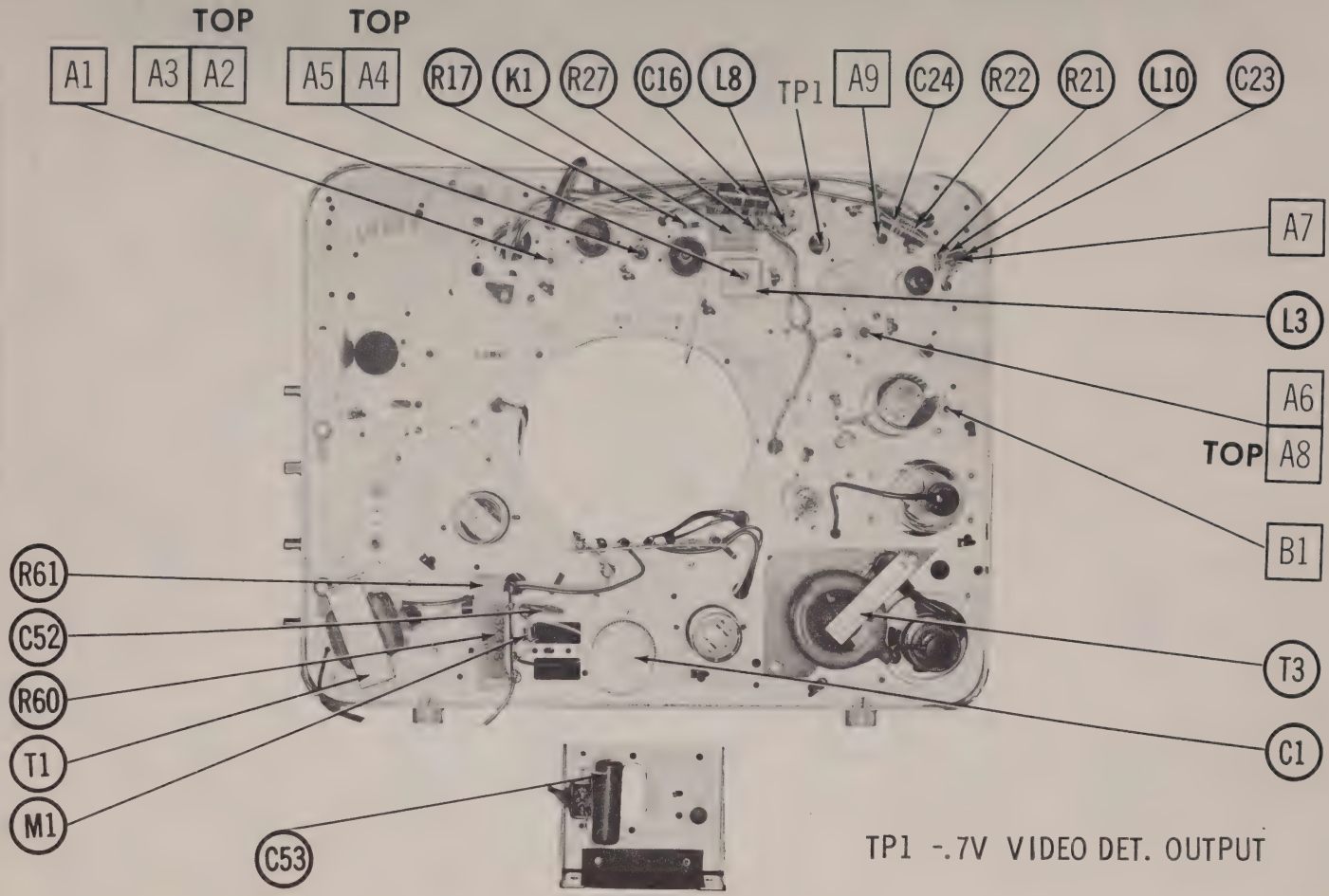
## DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 4 metal screws holding rear cover. Remove rear cover.
2. Remove 6 push-on type knobs at side of cabinet.
3. Remove speaker leads, high voltage lead, picture tube socket, yoke, and ground lead from picture tube to chassis. Unsolder isolation unit from cabinet.
4. Remove 2 screws holding AC plug (at bottom of cabinet). Remove 4 chassis bolts (2 at top and 2 at bottom).
5. Remove chassis.

PICTURE TUBE REMOVAL

1. Remove rear cover.
2. Remove picture tube socket and yoke.
3. Remove 2 screws on each side and one at bottom, holding front escutcheon (cabinet front).
4. Pull escutcheon out part way and disconnect HV lead and picture tube mounting bracket ground wire.
5. Remove escutcheon (contains picture tube and mounting assembly).



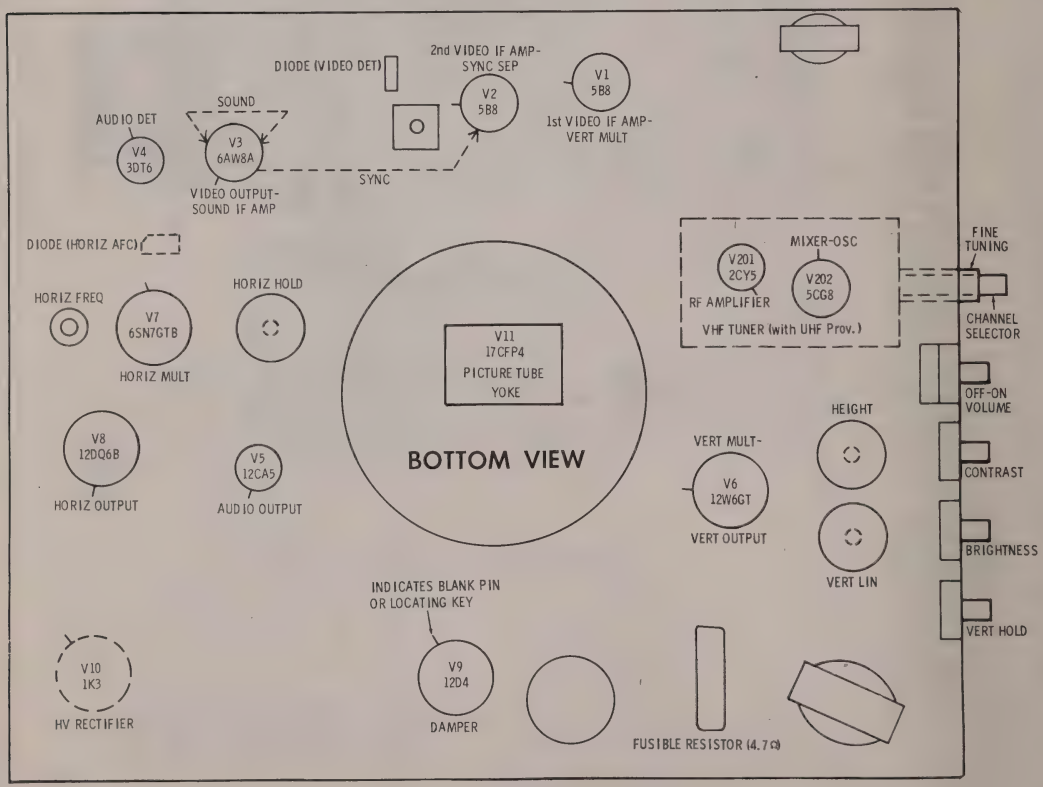

CHASSIS - TOP VIEW

## RESISTANCE MEASUREMENTS

| ITEM | TUBE | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| V1 | 5B8 | 0Ω | ● 1meg | ●† 2.2meg | 60Ω | 70Ω | 1meg | 56Ω | † 165Ω | † 165Ω |
| V2 | 5B8 | 0Ω | 2.4meg | † 12K | 50Ω | 60Ω | 0Ω | 180Ω | † 165Ω | † 165Ω |
| V3 | 6AW8A | 0Ω | 100K | † 35K | 40Ω | 50Ω | ●100Ω | 220K | † 15Ω | † 3300Ω |
| V4 | 3DT6 | 4Ω | 680Ω | 40Ω | 35Ω | †710K | † 2200Ω | 680K | | |
| V5 | 12CA5 | 120Ω | NC | 125Ω | 105Ω | 0Ω | † 2200Ω | † 235Ω | | |
| V6 | 12W6GT | TP | 85Ω | † 270Ω | † 15Ω | ● 2.6meg | TP | 105Ω | 0Ω | |
| V7 | 6SN7GTB | 3meg | † 12K | 1200Ω | ● 110K | † 33K | 1200Ω | 25Ω | 35Ω | |
| V8 | 12DQ6B | TP | 125Ω | TP | † 1200Ω | 450K | TP | 145Ω | 0Ω | TOP CAP † 12Ω |
| V9 | 12D4 | NC | TP | ¶ | NC | † 15Ω | NC | 0Ω | 15Ω | |
| V10 | 1K3 | PINS 1 THRU 8 HAVE INFINITE RESISTANCE | | | | | | | | TOP CAP † 445Ω |
| V11 | 17CFP4 | 15Ω | 12Ω | Pin 6 † 27K | Pin 10 † 27K | Pin 11 ●200K | Pin 12 25Ω | | | |
| V201 | 2CY5 | 1meg | 0Ω | 80Ω | 85Ω | † 235Ω | † 10K | 0Ω | | |
| V202 | 5CG8 | 15K | † 57K | 0Ω | 80Ω | 70Ω | † 2400Ω | † 47K | 0Ω | 240K |
| ITEM | TUBE | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM OUTPUT OF M1.
† MEASURED FROM PIN 3 OF V9.
■ THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.

NC NO CONNECTION
TP TIE POINT




## TUBE PLACEMENT CHART

PHOTOFACT® Folder with CIRCUITRACE®

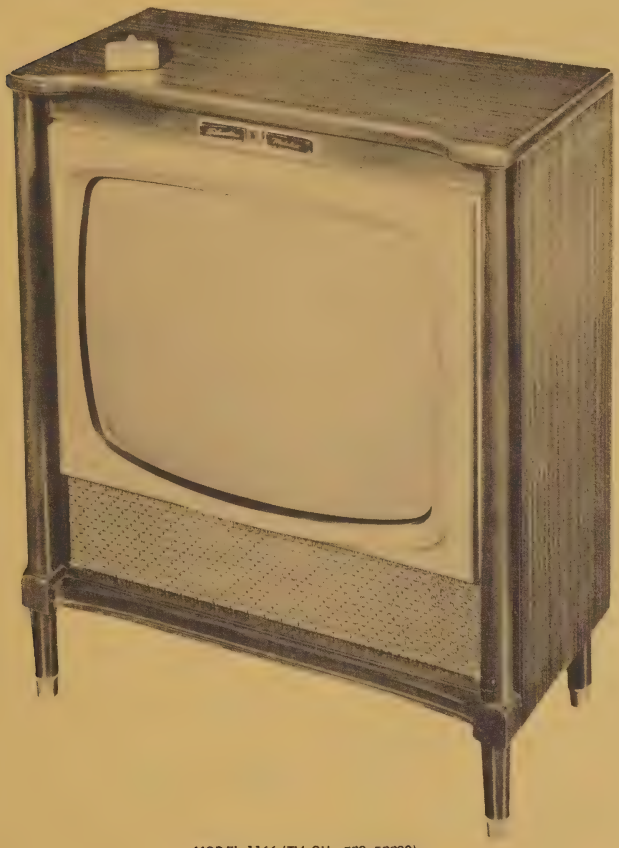
**SILVERTONE CHASSIS 456.52280, 301, 302, 528.52280, 301, 302**

SILVERTONE CHASSIS 456.52280, 301, 302, 528.52280, 301, 302

## IMPORTANT FILING NOTICE

The TV Folder for this envelope will be found among the first folders in this complete Set of folders.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.



MODEL 1166 (TV CH. 528.52280)

SILVERTONE CHASSIS 456.52280, 301, 302, 528.52280, 301, 302

SET 518 FOLDER 2

**HOWARD W. SAMS & CO., INC.** Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

PHOTOFACT® Folder with CIRCUITRACE®

# SILVERTONE CHASSIS 456.52280, 301, 302, 528.52280, 301, 302

SILVERTONE CHASSIS 456.52280, 301, 302, 528.52280, 301, 302

## CAUTION

ONE SIDE OF AC LINE CONNECTED TO CHASSIS.

Care should be exercised when connecting test equipment or physically contacting chassis. Isolation devices employed by manufacturer should be checked and properly connected before returning receiver to owner.

MODEL 1166 (TV CH. 528.52280)

| TRADE NAME | SILVERTONE MODEL | TV Chassis | Remote Control Receiver Chassis | Remote Control Transmitter Chassis |
|---|---|---|---|---|
| | PC-1166, PC-1170, PC-1184, PC-1186, PC-1188 .... | 456.52280 | 456.52302 ..... | 456.52301 |
| | 1166, 1170, 1184, 1186, 1188 ..... | 528.52280 | 528.52302 ..... | 528.52301 |
| SUPPLIER | Sears, Roebuck & Co., 925 S. Homan Avenue, Chicago, Illinois | | | |
| TYPE SET | Television Receiver (with Remote Control) | | | |
| TUBES | TV: Seventeen Remote Control Receiver: Six | | | |
| TRANSISTORS | Remote Control Transmitter: One | | | |
| POWER SUPPLY | 110-120 Volts AC, 60 Cycle | | | |
| RATING | TV & Remote Control Receiver: 220 Watts, 2 Amp. @ 117 Volts AC (While Tuning) | | | |
| | TV & Remote Control Receiver: 195 Watts, 1.8 Amp. @ 117 Volts AC (Not Tuning) | | | |
| | TV Only: 170 Watts, 1.6 Amp. @ 117 Volts AC | | | |
| TUNING RANGE | Channels 2 thru 13 VHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier) | | | |

## SERVICING IN THE FIELD

SAFETY GLASS REMOVAL

The safety glass is an integral part of the picture tube (23" Models).

FUSE DEVICE

A Circuit Breaker is used for low voltage power supply protection, and may be reset by depressing the reset button. (For location, see "Tube Placement Chart".)

TUNER OSCILLATOR ADJUSTMENT

To touch up the VHF Oscillator, it is necessary to remove the rear cover.

AGC

The AGC may be varied by means of an AGC Delay Control. (For location, see "Tube Placement Chart".)

FOCUS

The focus may be varied by means of a Focus Control. (For location, see "Tube Placement Chart".)

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

Coarse adjustment of the Horizontal Hold is accomplished by the proper setting of the Horiz. Stabilizer Coil (Freq.) Slug.

WIDTH

The width may be varied by adjusting a metallic sleeve, located between the yoke and the picture tube neck, in or out of the yoke.

HORIZONTAL DRIVE

The horizontal drive may be varied by a Horizontal Drive Control. (For location, see "Tube Placement Chart".)

CENTERING

Centering is accomplished by 2 magnetic rings, located behind the yoke, on the neck of the picture tube.

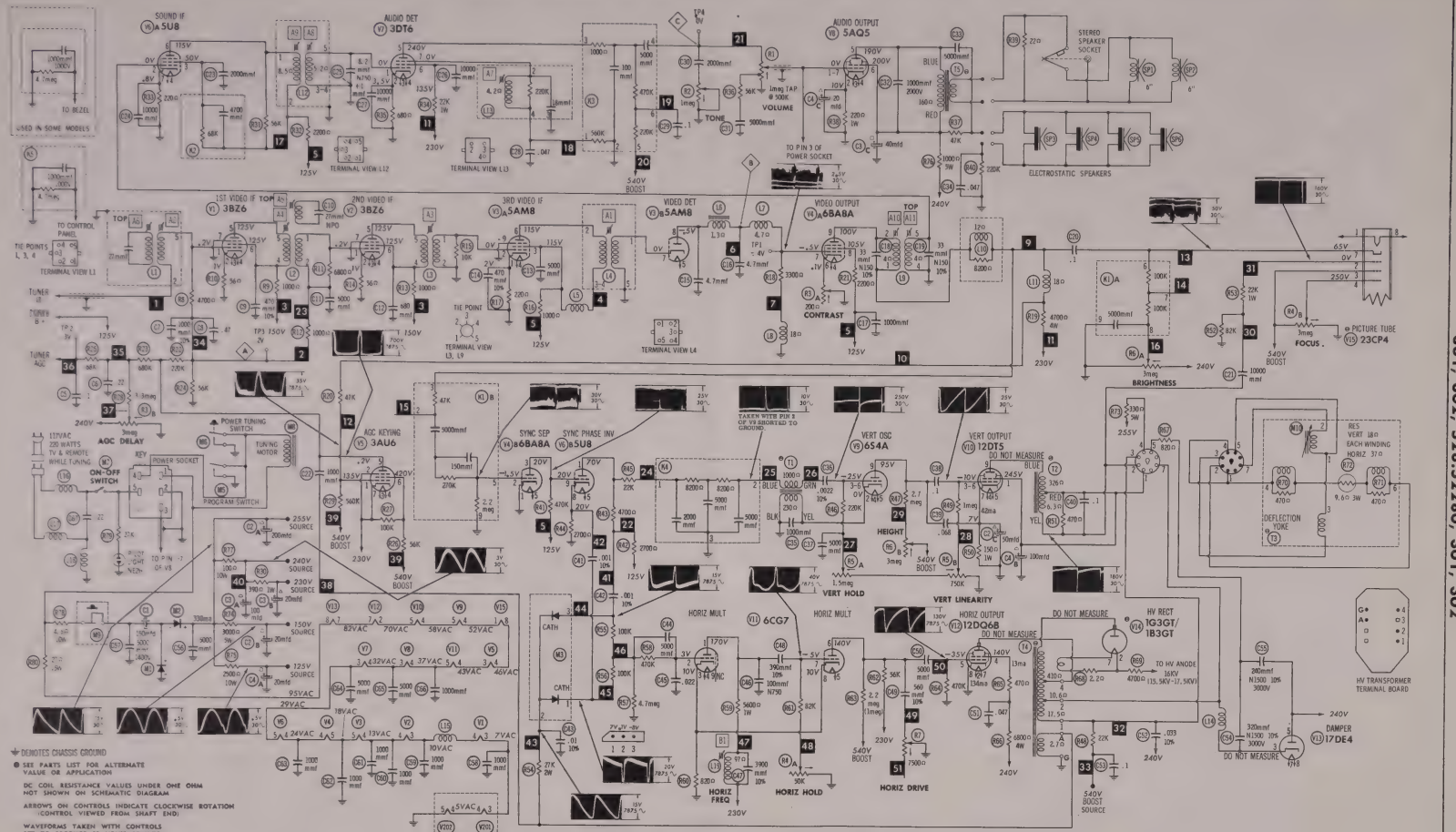
HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of KA455

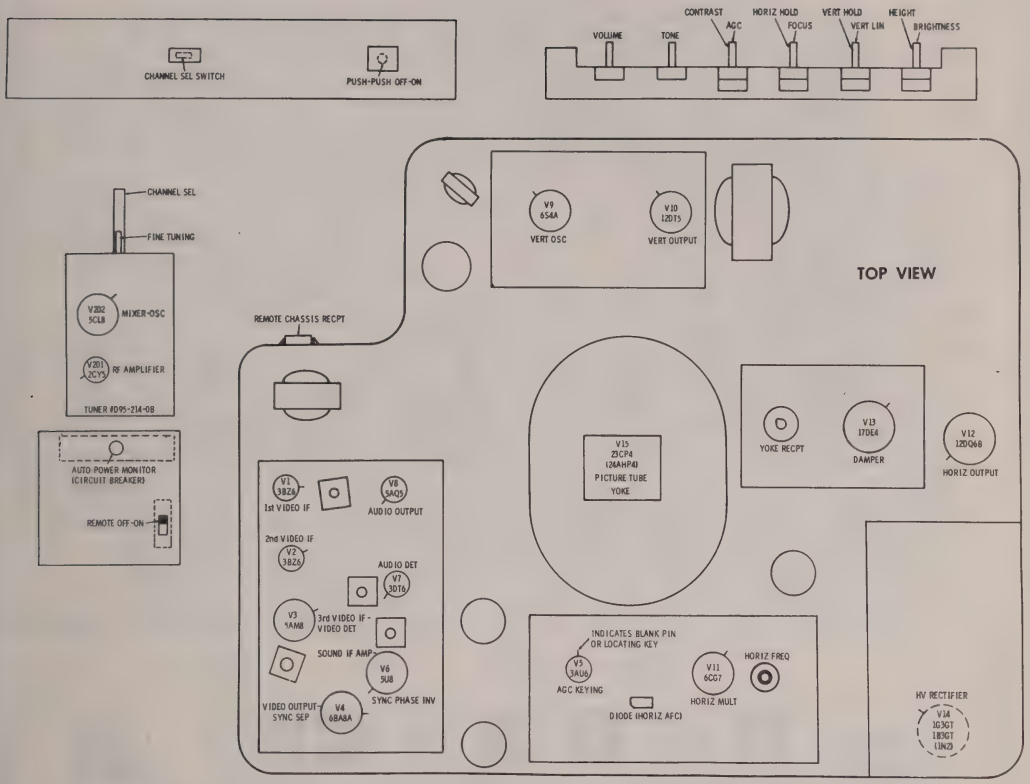
the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America



SET 518 FOLDER 2


SOUND IF V6 6SU8
AUDIO DET V7 3DT6
AUDIO OUTPUT V8 5AQ5
1ST VIDEO IF V1 3BZ6
2ND VIDEO IF V2 3BZ6
3RD VIDEO IF V3 5AM8
VIDEO DET V3 5AM8
VIDEO OUTPUT V4 6BA8A
AGC KEYING V5 3AU6
SYNC SEP V4 6BA8A
SYNC PHASE INV V5 6SU8
VERT OSC V9 6S4A
VERT OUTPUT V10 12DTS
HORIZ MULT V11 6CG7
HORIZ OUTPUT V12 12DQ68
HV RECT V14 1G3GT/1B3GT
VOLUME
TONE
CONTRAST
BRIGHTNESS
FOCUS
HEIGHT
VERT HOLD
VERT LINEARITY
HORIZ FREQ
HORIZ HOLD
HORIZ DRIVE
AGC DELAY
ON-OFF SWITCH
POWER TUNING SWITCH
PROGRAM SWITCH
TUNING MOTOR
STEREO SPEAKER SOCKET
ELECTROSTATIC SPEAKERS
PICTURE TUBE V15 23CP4
DEFLECTION YOKE
HV TRANSFORMER TERMINAL BOARD
DAMPER V13 17DE4
DO NOT MEASURE
TAKEN WITH PIN 5 OF V8 SHORTED TO GROUND
TERMINAL VIEW L1
TERMINAL VIEW L12
TERMINAL VIEW L13
TERMINAL VIEW L3, L9
TERMINAL VIEW L4
TO PIN 3 OF POWER SOCKET
TO CONTROL PANEL
TO BEZEL
USED IN SOME MODELS
TIE POINTS L3, 4
TIE POINT
TOP
BLUE
RED
GRN
YEL
BLK
117VAC 220 WATTS TV & REMOTE WHILE TUNING
255V SOURCE
240V SOURCE
230V SOURCE
150V SOURCE
125V SOURCE
95VAC
29VAC
18VAC
540V BOOST
540V BOOST SOURCE
DENOTES CHASSIS GROUND
SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)
WAVEFORMS TAKEN WITH CONTROLS SET TO PRODUCE 50 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE.
DC voltage measurements taken with vacuum tube voltmeter, AC voltage measured at 1000 ohms per volt.
2 Pin numbers are counted in clockwise direction on bottom of socket
3 Measured values are from socket pin to common negative unless otherwise stated.
4 Line Voltage maintained at 117 volts for voltage readings
5 All controls set for normal operation; no signal applied
ADDITIONAL SCHEMATICS PAGE
REMOTE CONTROL RECEIVER 456/528, 52302 and TRANSMITTER 456/528, 52301 .. 8, 17
V-F TUNER 95-214-0 .. 9
NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.
A PHOTOFACT STANDARD NOTATION SCHEMATIC
CIRCUITRACE
© Howard W. Sams & Co., Inc. 1961
SILVERTONE CHASSIS 456.52280, 301, 302, 528.52280, 301, 302

# TUBE PLACEMENT CHART




SILVERTONE CHASSIS 456.52280, 301, 302, 528.52280, 301, 302

# TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce indicated symptoms. Refer to tube placement chart for location and type of tube.

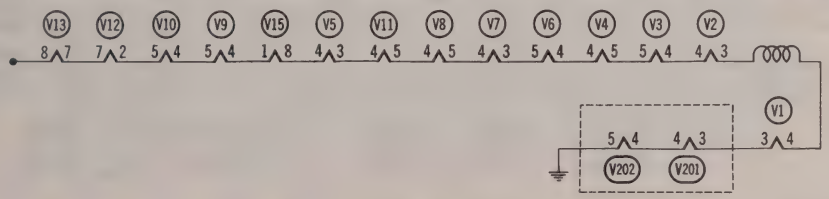
POWER SUPPLY FAILURE
No raster, no sound Circuit Breaker, Rectifiers (B+)

SWEEP FAILURE
No raster, has sound V11, V12, V13, V14, V15
No vertical deflection V9, V10
Poor vert. linearity or foldover V9, V10
Poor horiz. linearity or foldover V11, V12, V13
Narrow picture V10, V11, Rectifiers (B+)
Vert. off freq. V9
Horiz. off freq. Diodes (Horiz.AFC), V11

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster V1, V2, V3, V4
No pic, no sound, has snow V201, V202, V1
No pic, has sound, has raster V4, V15
Has pic, no sound V6, V7, V8
Overloaded picture V5

SYNC FAILURE
No vert. sync V4, V6
No horiz. sync V4, V6
No vert. or horiz. sync V4, V8

This receiver employs tubes used in a series filament network, an open filament in any tube will cause the set to be inoperative. (See circuit below.)

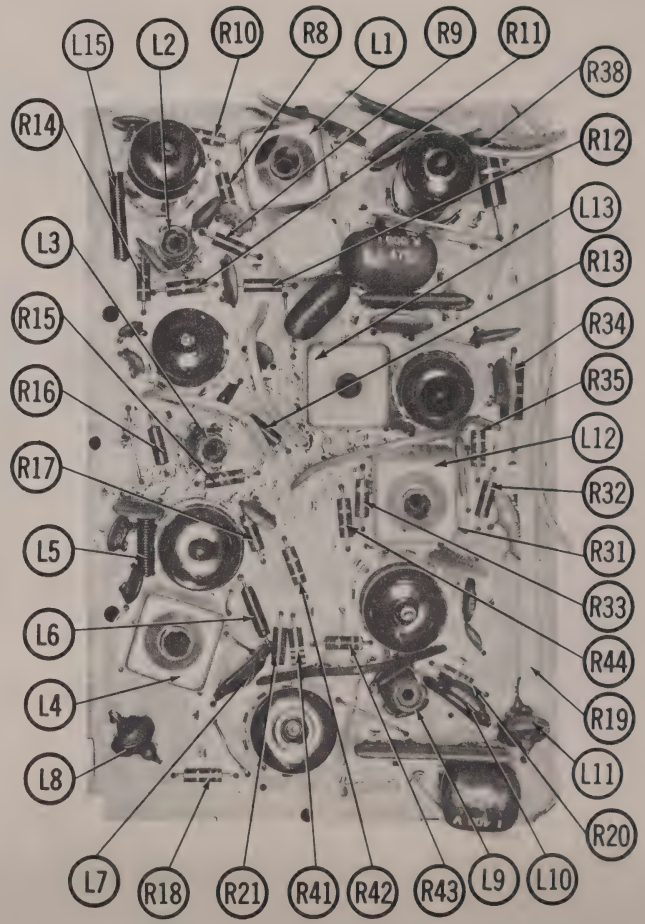



FOLDER 2

A Howard W. Sams CIRCUITRACE® Photo

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED

VIDEO, SOUND, SYNC PRINTED BOARD




VIDEO, SOUND, SYNC PRINTED BOARD
RESISTOR & INDUCTOR IDENT.

TV CHASSIS-FRONT VIEW




VIDEO, SOUND, SYNC PRINTED BOARD
CAPACITOR & MISC. IDENT.

# ALIGNMENT INSTRUCTIONS
## TV

PRE-ALIGNMENT INSTRUCTIONS

Use an ISOLATION TRANSFORMER TO PROTECT the Test Equipment.
The High Voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested Alignment Tools: GENERAL CEMENT #8606, 8606L, 8282, 9295
WALSCO #2526, 2543, 2544, 2545

VIDEO IF ALIGNMENT

Short the antenna terminals together, but not to chassis.
Connect the negative lead of a 3 volt bias supply to point Ⓐ . Positive to chassis.
Detune A1, A4, A5, A6, and Mixer Plate Coil by turning the cores almost out of the coil forms.

| | DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | CHANNEL | CONNECT VTVM | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|
| 1. | Direct | Place a thin insulated metal strip between the Mixer-Osc. tube (V202), and tube shield. Connect the high side of sweep generator to the metal strip. Low side to chassis. | 44.15MC (Unmod) | Any non-interfering channel | DC probe thru 10K to point Ⓑ . Common to chassis. (Across Video Det. load) | A1, A2, & Mixer Plate Coil | Attenuate generator output to maintain not more than 2 volts on VTVM. Adjust for maximum deflection. |
| 2. | " | " | 42.75MC | " | " | A3 | " |
| 3. | " | " | 45.55MC | " | " | A4 | " |
| 4. | " | " | 47.25MC | " | " | A5 | Increase generator output. Adjust A5 for MINIMUM deflection. Repeat steps 3 and 4. |
| 5. | " | " | 41.25MC | " | " | A6 | Adjust for MINIMUM deflection. |

OVERALL VIDEO IF RESPONSE CHECK

Short the antenna terminals together, but not to chassis.
Attenuate sweep generator output to maintain not more than 2 volts peak to peak on scope.
If separate marker generator is used, couple loosely to output cable of sweep generator.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.

| | DUMMY ANTENNA | SWEEP GENERATOR COUPLING | SWEEP GENERATOR FREQUENCY | MARKER GENERATOR FREQUENCY | CHANNEL | CONNECT SCOPE | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 6. | Direct | Place a thin insulated metal strip between the Mixer-Osc. tube (V202), and tube shield. Connect the high side of sweep generator to the metal strip. Low side to chassis. | 44.25MC (10MC Swp) | 41.25MC<br>42.55MC<br>43.8MC<br>44.15MC<br>45.0MC<br>45.75MC<br>47.25MC | Any non-interfering channel | Vert. Amp. thru 10K to point Ⓑ . Low side to chassis. | | Check for response similar to Fig. 1. If necessary, retouch Mixer Plate Coil to place 45.75MC marker at 50%. Retouch A1 for proper tilt. |

SOUND IF ALIGNMENT

Connect the negative lead of a 5 volt bias supply to point Ⓐ Positive to chassis.
Set Contrast control fully clockwise.

| | DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | CHANNEL | CONNECT VTVM | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|
| 7. | .05mfd | High side to point Ⓑ . Low side to chassis. (.1 volt output) | 4.5MC (400∿ FM 15KC Swp) | Any non-interfering channel | AC probe to point Ⓒ . Common to chassis. | A7, A8 | Adjust for maximum deflection. If two peaks are found, use the greater peak. |
| 2. | " | High side to point Ⓑ . Low side to chassis. (500 microvolts) | " | " | " | A9, A10 | Adjust for maximum deflection. Retouch A8 for maximum deflection. |

4.5MC TRAP ALIGNMENT

Tune in a TV signal and adjust the Fine Tuning until a 4.5MC beat interference is noted in the picture. Adjust A11 until the horizontal scanning lines are smooth and continuous.

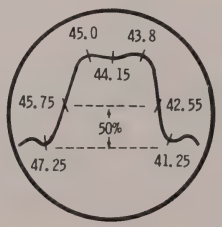



FIG.1

# REMOTE CONTROL RECEIVER AND TRANSMITTER
## ALIGNMENT INSTRUCTIONS

REMOTE CONTROL RECEIVER ALIGNMENT

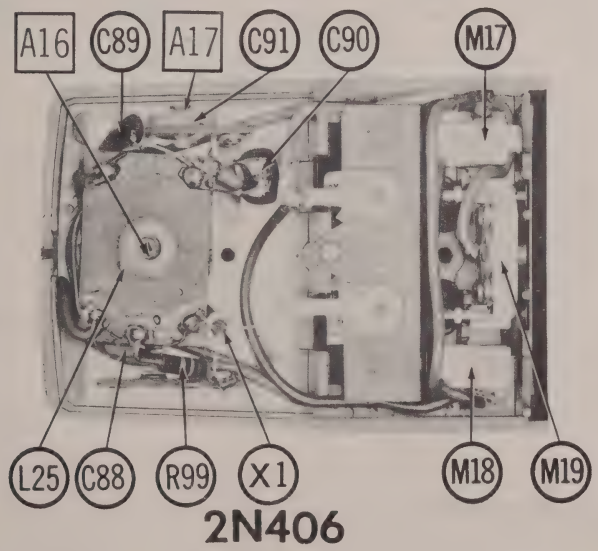
Remove Receiver from cabinet.
Allow a 20-minute warm-up period for the receiver and test equipment.

| | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | CONNECT VTVM | ADJUST | REMARKS |
|---|---|---|---|---|---|
| 1. | High side to Transducer Input Jack. Low side to chassis. | 38KC | DC probe to point Ⓓ. Common to chassis. | A12, A13 | Set Noise Level Control fully clockwise. Adjust for maximum deflection. |
| 2. | " | 42KC | DC probe to pin 5 (cathode) of 42KC Detector (V19). Common to chassis. | A14, A15 | Adjust for maximum deflection. |
| 3. | From the above adjustments, select the one that requires the most signal to trip the funtion relay. Set generator to that frequency. Set generator output to 10 microvolts. Turn Noise Level Control fully counterclockwise. Slowly turn control clockwise until relay keys. Switch generator to other frequency. If this frequency is 38KC, tune A13 lower in frequency until relay drops out, then tune in until relay just keys. If the frequency is 42KC, tune A15 higher in frequency until relay just drops out, then tune in until relay just keys. The two sensitivities are now equal | | | | |
| 4. | Make final adjustment of Noise Level Control by jingling keys in front of the Transducer with Noise Level Control fully clockwise. One or both relays should be actuated by this noise. Slowly turn Noise Level Control counterclockwise while jingling keys until both relays stop actuating. | | | | |

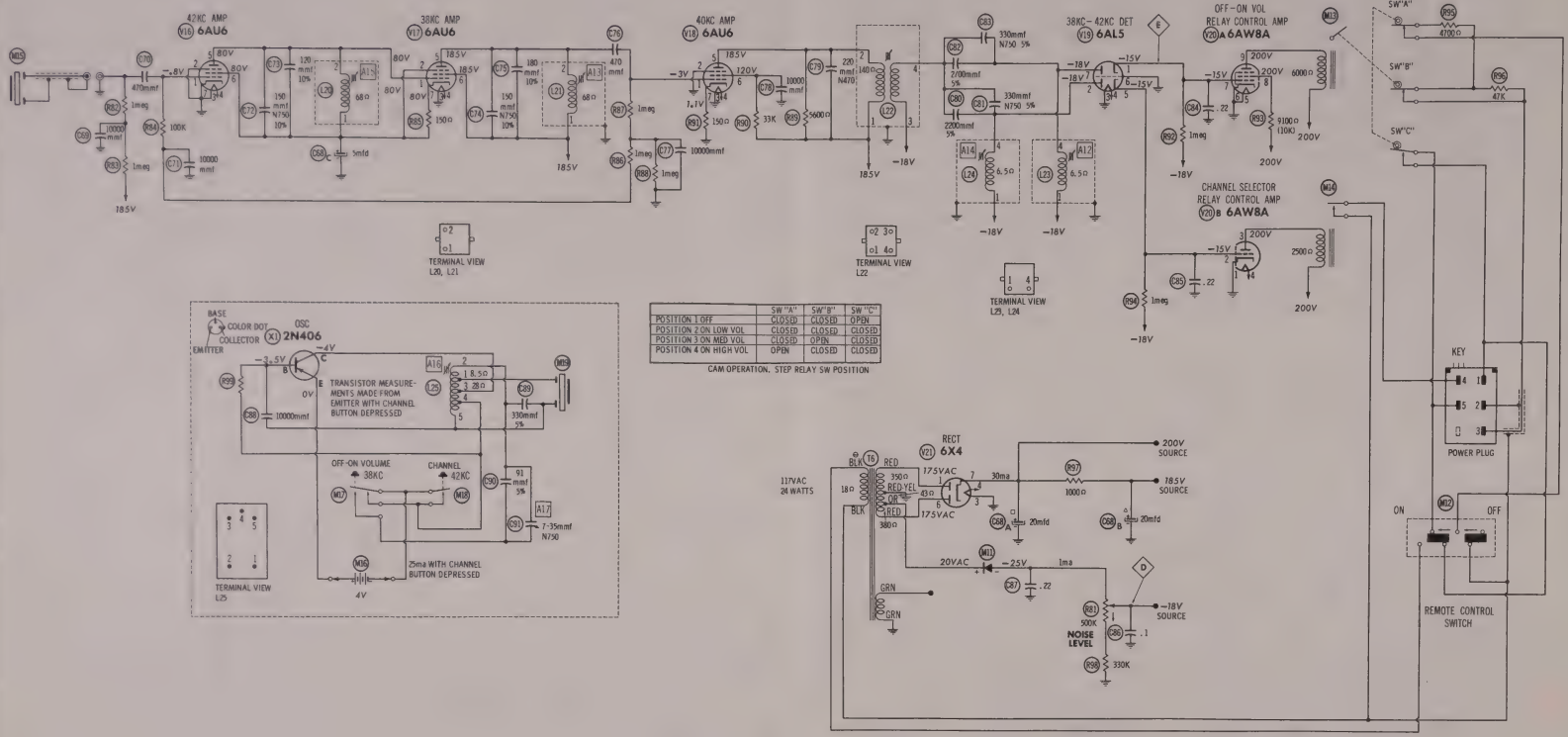
REMOTE CONTROL TRANSMITTER ALIGNMENT

Use non-metallic rod to depress proper switches in transmitter.

| | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | CONNECT SCOPE | ADJUST | REMARKS |
|---|---|---|---|---|---|
| 5. | Connect generator across Horizontal Input Terminals of scope. | 42KC | Vert. Amp. to point Ⓔ on Remote Recvr. Low side to chassis. | A16 | Place transmitter 1 foot from transducer. Depress "Channel" button and adjust A16 for single eliptical pattern on scope. |
| 6. | " | 38KC | " | A17 | Depress "On-Off-Volume" button and adjust A17 for single eliptical pattern on scope. |



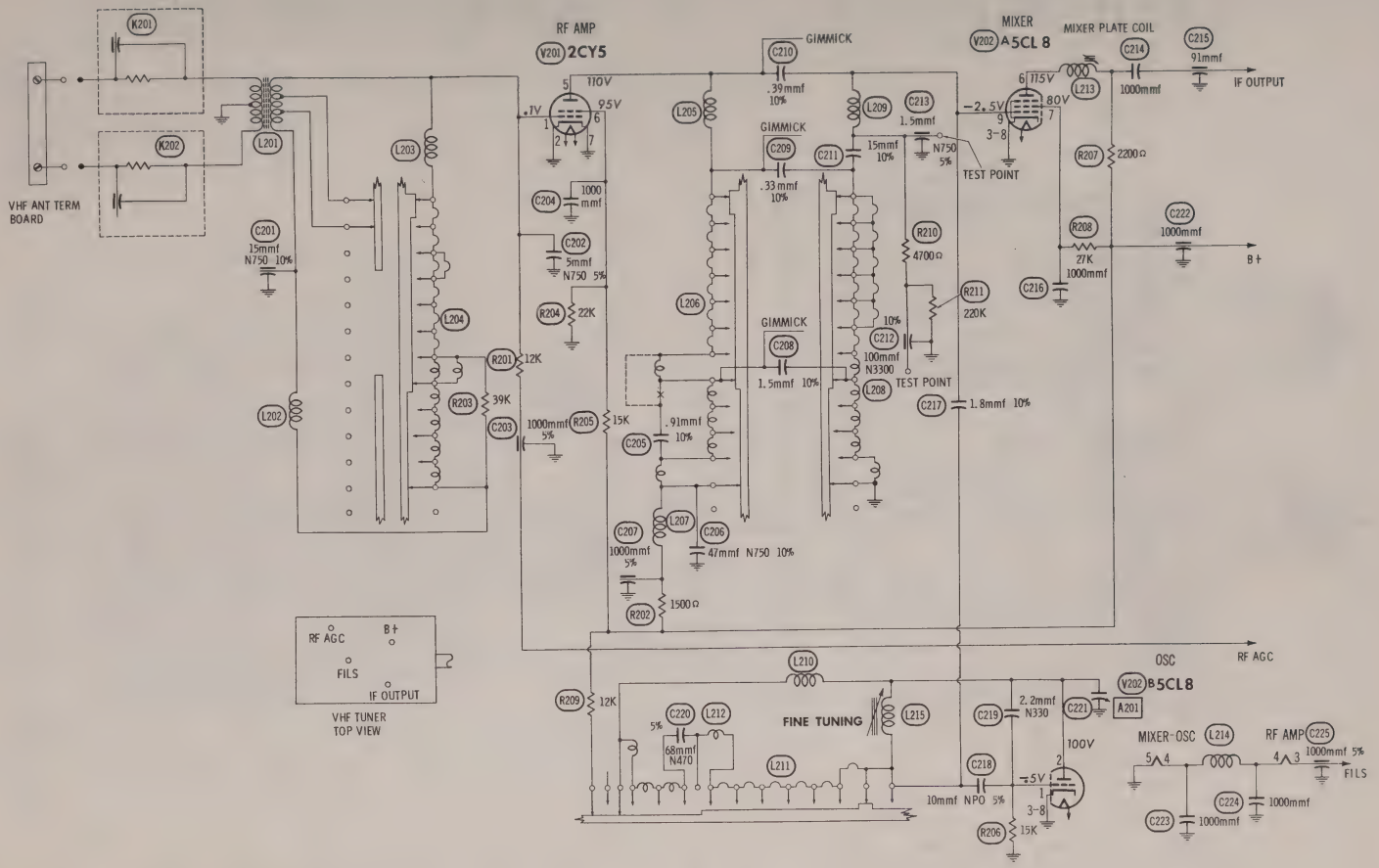

REMOTE CONTROL TRANSMITTER




| | SW "A" | SW "B" | SW "C" |
|---|---|---|---|
| POSITION 1 OFF | CLOSED | CLOSED | OPEN |
| POSITION 2 ON LOW VOL | CLOSED | CLOSED | CLOSED |
| POSITION 3 ON MED VOL | CLOSED | OPEN | CLOSED |
| POSITION 4 ON HIGH VOL | OPEN | CLOSED | CLOSED |

A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1961

REMOTE CONTROL RECEIVER CH. 456/528.52302 & REMOTE CONTROL TRANSMITTER CH. 456/528.52301

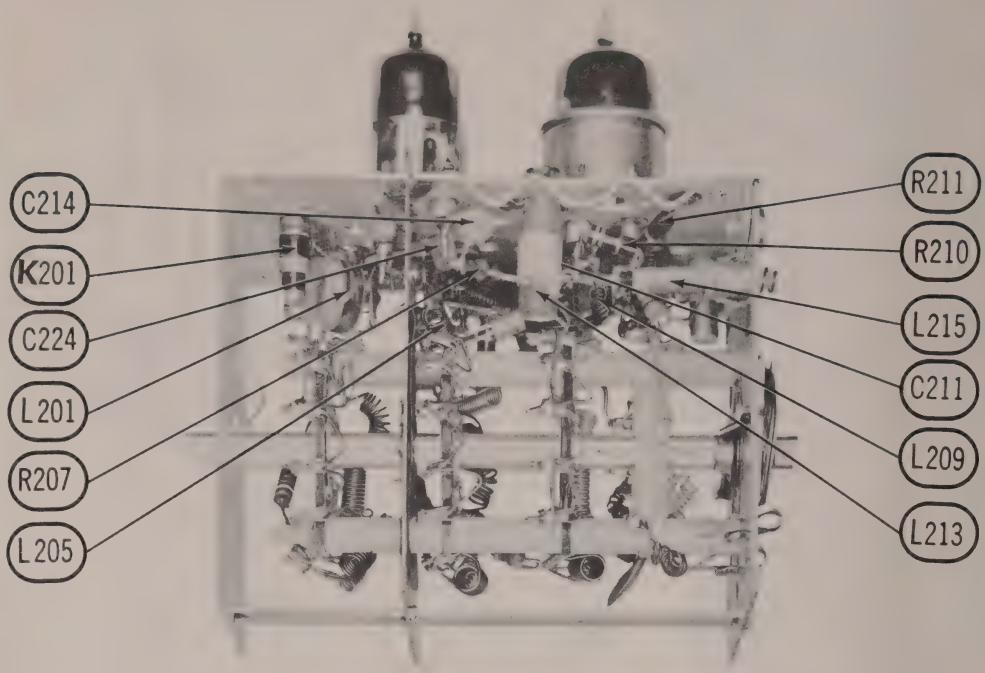



A PHOTOFACT STANDARD NOTATION SCHEMATIC

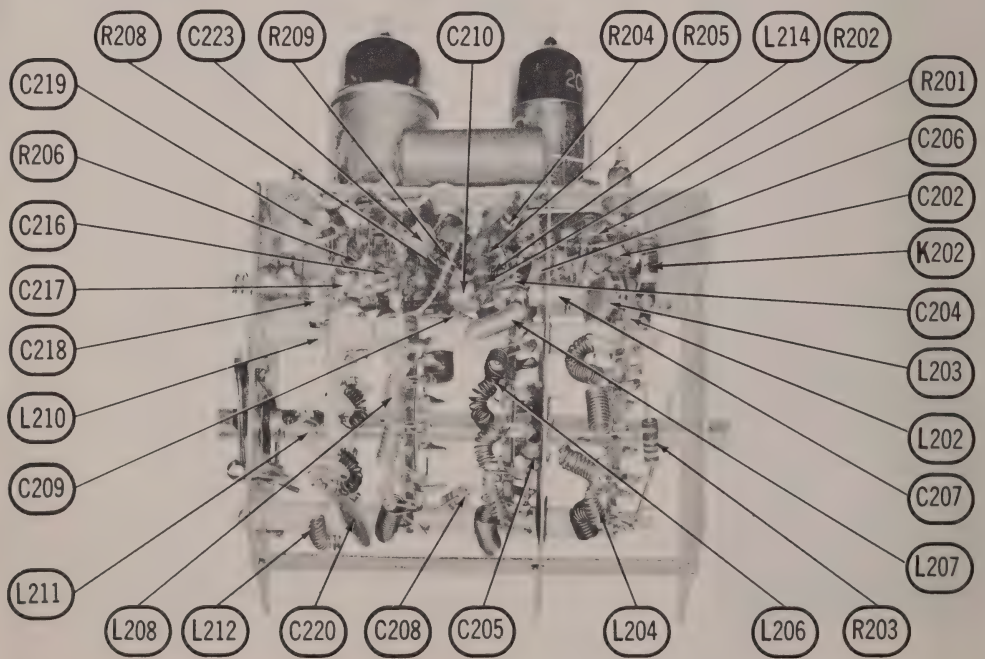
© Howard W. Sams & Co., Inc. 1961

## VHF TUNER 95-214-0

SILVERTONE CHASSIS 456.52280, 301, 302, 528.52280, 301, 302




VHF TUNER 95-214-0 —LEFT SIDE




VHF TUNER 95-214-0 - RIGHT SIDE

# TV PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | USE | TYPE | ITEM No. | USE | TYPE |
|---|---|---|---|---|---|
| V1 | 1st Video IF Amp. | 3BZ6 | V7 | Audio Detector | 3DT6 |
| V2 | 2nd Video IF Amp. | 3BZ6 | V8 | Audio Output | 5AQ5 |
| V3 | 3rd Video IF Amp. - Video Detector | 5AM8 | V9 | Vert. Osc. | 6S4A |
| V4 | Video Output - Sync Sep. | 6BA8A | V10 | Vert. Output | 12DT5 |
| V5 | AGC Keying | 3AU6 | V11 | Horiz. Mult. | 6CG7 |
| V6 | Sound IF Amp. - Sync Phase Inverter | 5U8 | V12 | Horiz. Output | 12DQ6B |
| | | | V13 | Damper | 17DE4 |
| | | | V14 | HV Rectifier | 1G3GT/1B3GT (1N2)* |

GENERAL ELECTRIC • RAYTHEON • SYLVANIA •

* Alternate

## PICTURE TUBE

| ITEM No. | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|
| | SILVERTONE PART No. | GENERAL ELECTRIC PART No. | RCA PART No. | RAYTHEON PART No. | SYLVANIA PART No. | |
| V15 | 23CP4<br>24AHP4 | 24AHP4 ① | 23CP4 ①<br>24AHP4 ① | 24AHP4 ① | 23CP4 ②<br>24AHP4 ② | ① Aluminized<br>② Silver Screen "85" |

## ELECTROLYTIC CAPACITORS

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | CAP. | VOLT. | SILVERTONE PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | PYRAMID PART No. | SPRAGUE PART No. | NOTES |
| C1 | 150 | 200 | 18-42-3 | AFHS1-37-25 | XA0315 | FP131 | TMS-1480 | TVL-1540 | |
| C2A | ▲200 | 325 | 18-46-3 | AFH3-111-85 | C0735 | FP330.13 | TMT-3376 | TVL-3636.8 | |
| B | ■20 | 300 | | | BR4015 | | | | |
| C | ▲50 | 15 | | | | | | | |
| C3A | ▲100 | 300 | 18-45-3 | AFH4-05-60 | D0044 | FP333.95 | TMT-3444 | TVL-4634 | |
| B | ▲20 | 300 | | | | | | | |
| C | ■40 | 300 | | | | | | | |
| C4A | ■20 | 300 | 18-47-3 | AFH4-56-60 | C0894 | FP333.15 | TMT-3483 | TVLS-3564.5* | |
| B | ▲100 | 300 | | | | | | | |
| C | ▲20 | 15 | | | | | | | |

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

## FIXED CAPACITORS

**Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
| C5 | .1 200V | | P288N-1 | DF-104 | CUB2P1 | 2DP-3-104 | GEM-201 | 2TM-P10 |
| C6 | .22 200V | | P288N-22 | | CUB2P22 | 2DP-4-224 | GEM-2022 | 2TM-P22 |
| C7 | 1000 10% | | DI-1000 | DD-102 | PM6D1 | CCD-102 | GP210 | 10TS-D10 |
| C8 | .47 100V | | P2151N-47 | | BC2P47J | 1DP-4-474 | GEM-2047 | 2SE-P47 |
| C9 | 470 10% | | DI-470 | DD-471 | 5R5T47 | CCD-471 | GP347 | 10TS-T47 |
| C10 | 27 NPO | | NPO-DI-25 | TCZ-27 | C10Q27C | CCTO-270 | CNO-427 | 10TCC-Q27 |
| C11 | 5000 | | BPD-005 | DD-502 | BYA10D5 | CCD-502 | B-250 | 5HK-D50 |
| C12 | 680 | | BPD-00068 | DD-681 | BYA10T68 | CCD-681 | B-368 | 10TS-T68 |
| C13 | 5000 | | BPD-005 | DD-502 | BYA10D5 | CCD-502 | B-250 | 5HK-D50 |
| C14 | 470 10% | | DI-470 | DD-471 | 5R5T47 | CCD-471 | GP347 | 10TS-T47 |
| C15 | 4.7 | | NPO-SI 4.7 | TCZ-4R7 | C10V47C | CCTO-4R7 | CNO-547 | 10TCC-V47 |
| C16 | 4.7 | | NPO-SI 4.7 | TCZ-4R7 | C10V47C | CCTO-4R7 | CNO-547 | 10TCC-V47 |
| C17 | 1000 | | BPD-001 | DD-102 | BYA10D5 | CCD-102 | B-210 | 5HK-D10 |
| C18 | 33 N150 10% | | | | | * | | 10TCP-Q33 |
| C19 | 33 N150 10% | | | | | * | | 10TCP-Q33 |
| C20 | .1 400V | | P488N-1 | DF-104 | CUB4P1 | 4DP-3-104 | GEM-401 | 4TM-P10 |
| C21 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C22 | 1000 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C23 | 2000 | | BPD-002 | DD-202 | BYA10D2 | CCD-202 | B-220 | 5HK-D20 |
| C24 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C25 | 8.2 N750 ±1mmf | #20-118-0 | | | C10V82U | | | |
| C26 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C27 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C28 | .047 400V | | P488N-047 | DD-503 | CUB4S47 | 4DP-3-473 | GEM-4147 | 4TM-S47 |
| C29 | .1 600V | | P688N-1 | DF-104 | CUB6P1 | 6DP-4-104 | GEM-601 | 6TM-P10 |
| C30 | 2000 | | BPD-002 | DD-202 | BYA10D2 | CCD-202 | B-220 | 5HK-D20 |
| C31 | 5000 | | BPD-005 | DD-502 | BYA10D5 | CCD-502 | B-250 | 5HK-D50 |
| C32 | 1000 2000V | | HVD-30-1000 | DD30-102 | HVB20D1 | 3CCD-102 | 2HV-210 | 20GA-D10 |
| C33 | 5000 | | BPD-005 | DD-502 | BYA10D5 | CCD-502 | B-250 | 5HK-D50 |
| C34 | .047 600V | | P688N-047 | DD-503 | CUB6S47 | 6DP-3-473 | GEM-6147 | 6TM-S47 |
| C35 | 1000 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C36 | .0022 600V 10% | | V84C6D22-10% | | PM6D22 | 6DP-1-222 | GEM-16222 | 6TM-D22 |
| C37 | 5000 | | BPD-005 | DD-502 | BYA10D5 | CCD-502 | B-250 | 5HK-D50 |
| C38 | .1 600V | | P688N-1 | DF-104 | CUB6P1 | 6DP-4-104 | GEM-601 | 6TM-P10 |
| C39 | .068 600V | | P688N-068 | | PM6S68 | 6DP-4-683 | GEM-6168 | 6TM-S68 |
| C40 | .1 600V | | P688N-1 | DF-104 | CUB6P1 | 6DP-4-104 | GEM-601 | 6TM-P10 |
| C41 | .001 400V 10% | | V84C6D1-10% | DD-102 | PM6D1 | 6DP-1-102 | GEM-1621 | 6TM-D10 |
| C42 | .001 400V 10% | | V84C6D1-10% | DD-102 | PM6D1 | 6DP-1-102 | GEM-1621 | 6TM-D10 |
| C43 | .01 400V 10% | | V84C6D1-10% | DD-102 | PM6D1 | 6DP-1-102 | GEM-1621 | 6TM-D10 |
| C44 | 5000 | | BPD-005 | DD-502 | BYA10D5 | CCD-502 | B-250 | 5HK-D50 |
| C45 | .022 200V | | P288N-022 | DD-203 | CUB4S22 | 4DP-2-223 | GEM-4122 | 2TM-S22 |
| C46 | 100 N750 | | N750-DI 100 | DTN-100 | C10T1U | CCTN-101 | CN7-310 | 10TCU-T10 |
| C47 | 3900 10% | | 1469-0039 | | 1R5D39 | CM-20B-392K | MCJ462.5 | MS-239 |
| C48 | 390 10% | | 1469-00039 | | 5R5T39 | CM-19B-391K | MCB241 | MS-339 |
| C49 | 560 10% | | 1469-00056 | | 5R5T56 | CM-19B-561K | MCJ247 | MS-356 |
| C50 | 5000 | | BPD-005 | DD-502 | BYA10D5 | CCD-502 | B-250 | 5HK-D50 |
| C51 | .047 400V | | P488N-047 | DD-503 | CUB4S47 | 4DP-3-473 | GEM-4147 | 4TM-S47 |
| C52 | .033 600V 10% | | V84C6S33-10% | | PM6S33 | 6DP-3-333 | GEM-1613 | 6TM-S33 |
| C53 | .1 400V | | P488N-1 | DF-104 | CUB4P1 | 4DP-3-104 | GEM-401 | 4TM-P10 |
| C54 | 320 3000V N1500 10% | #20-323-0 | | | | | | |
| C55 | 240 3000V N1500 10% | #20-322-0 | | | | | | |
| C56 | 5000 | | BPD-005 | DD-502 | BYA10D5 | CCD-502 | B-250 | 5HK-D50 |
| C57 | 5000 1400V | | DAC-9 | DD16-502 | HVE16D5 | 3CCD-502 | UAC-250 | BL-D50 |
| C58 | 1000 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C59 | 1000 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C60 | 1000 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C61 | 1000 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C62 | 1000 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C63 | 1000 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |

# TV PARTS LIST AND DESCRIPTIONS (Continued)

## FIXED CAPACITORS (cont)

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
| C84 | 5000 | | BPD-005 | DD-502 | BYA10D5 | CCD-502 | B-250 | 5HK-D50 |
| C85 | 5000 | | BPD-005 | DD-502 | BYA10D5 | CCD-502 | B-250 | 5HK-D50 |
| C86 | 1000 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C87 | .22 400V | | P488N-22 | | CUB4P22 | 4DP-5-224 | GEM-4022 | 4TM-4022 |

# Silvertone Part Number.
* Not normally in distributor' s stock. Available thru distributor on order to manufacturer.

## CONTROLS

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| | RESISTANCE | WATTS | SILVERTONE PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | CTS—IRC PART No. | MALLORY PART No. | |
| R1A | 1meg | ½ | 24-431 | F1-56 | | (1) GJ-1529 | FB1ET55 | Volume |
| B | 500K Tap | | | | | | | |
| | Shaft | | | Not Reg. | | | O6687 | |
| R2A | 1meg | ½ | 24-432 | F1-53 | | (2) GJ-1528 | FA1EL | Tone |
| B | Shaft | | | Not Reg. | | | O6687 | |
| R3A | 300Ω | | 24-435 | F1-0 | | (3) GJ-1527 ■ | UE4197 | Contrast |
| B | 3meg | | | R3-78 | | | | AGC Delay |
| R4A | 50K | | 24-434 | F1-55 | | (4) GJ-1526 ▲ | UE4196 | Horiz. Hold |
| B | 3meg | | | R3-78 | | | | Focus |
| R5A | 1.5meg | | 24-436 | F1-54 | | (5) GJ-1525 ● | UE4199 | Vert. Hold |
| B | 750K | | | R3-51 | | | | Vert. Linearity |
| R6A | 3meg | | 24-433 | F1-75 | | (6) GJ-1524 ▼ | UE4195 | Brightness |
| B | 3meg | | | R3-79 | | | | Height |
| R7A | 750Ω | | 24-144-1 | TT-44 | B47-10K-S | BU-115 | | Horiz. Drive |
| B | Shaft | | | Not Reg. | Not Reg. | TM4 | | |

① "CONCENTRIKIT" Equivalent: K-8 Kit with Base Elements and Shafts: B19-137X, P13-022 (Panel) R5 (Bushing)

② "CONCENTRIKIT" Equivalent: K-8 Kit with Base Elements and Shafts: B13-137, P13-023 (Panel) R5 (Bushing) (Not available as a factory assembled unit).

③ "CONCENTRIKIT" Equivalent: K-8 Kit with Base Elements and Shafts: B11-201, P13-022 (Panel) B11-140, R15-005 (Rear) R3 (Bushing)

④ "CONCENTRIKIT" Equivalent: K-8 Kit with Base Elements and Shafts: B11-123, P13-022 (Panel) B11-140, R15-005 (Rear) R6 (Bushing) (Not available as a factory assembled unit).

⑤ "CONCENTRIKIT" Equivalent: K-8 Kit with Base Elements and Shafts: B11-136, P13-022 (Panel) B11-136, R15-005 (Rear) R5 (Bushing) (Not available as a factory assembled unit).

⑥ "CONCENTRIKIT" Equivalent: K-8 Kit with Base Elements and Shafts: B11-140, P13-022 (Panel) B11-140, R15-005 (Rear) R5 (Bushing)

■ "STA-LOC" Equivalent: FA2EL, RU361, O6687, IX525
▲ "STA-LOC" Equivalent: FB54L, RU361, O6687, IX525
● "STA-LOC" Equivalent: FB55L, RU754L, O6687, IX525
▼ "STA-LOC" Equivalent: FB36L, RU36A, O6687, IX525

## RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

| ITEM No. | RATING | REPLACEMENT DATA | | | ITEM No. | RATING | REPLACEMENT DATA | | |
|---|---|---|---|---|---|---|---|---|---|
| | | IRC PART No | WORKMAN TV PART No. | REMARKS | | | IRC PART No. | WORKMAN TV PART No. | REMARKS |
| R8 | 4700Ω | | | | R45 | EEK | | | |
| R9 | 4700Ω | | | | R46 | EEK | | | |
| R10 | 56Ω | | | | R47 | 2.7meg | | | |
| R11 | 68000 | | | | R48 | 22K | | | |
| R12 | 1000Ω | | | | R49 | 1meg | | | |
| R13 | 1000Ω | | | | R50 | 150Ω 1W | | | |
| R14 | 56Ω | | | | R51 | 470Ω | | | |
| R15 | 10K | | | | R52 | 82K | | | |
| R16 | 1000Ω | | | | R53 | 22K 1W | | | |
| R17 | 2.2meg | | | | R54 | 27K 2W | | | |
| R18 | 3300Ω | | | | R55 | 100K | | | |
| R19 | 4700Ω 4W | PW5-4700Ω | 5W-SQ-4700Ω | #61-171-0 | R56 | 100K | | | |
| R20 | 47K | | | | R57 | 4.7meg | | | |
| R21 | 2200Ω | | | | R58 | 470K | | | |
| R22 | 220K | | | | R59 | 56000Ω 1W | | | |
| R23 | 680K | | | | R60 | 820Ω | | | |
| R24 | 56K | | | | R61 | 82K | | | |
| R25 | 68K | | | | R62 | 56K | | | |
| R26 | 56K | | | | R63 | 2.2meg | | | * 1meg |
| R27 | 100K | | | | R64 | 470K | | | |
| R28 | 3.3meg | | | | R65 | 470Ω | | | |
| R29 | 560K | | | | R66 | 6800Ω 4W | PW5-6800Ω | 5W-SQ-6800Ω | #61-186-0 |
| R30 | 1300 1W | | | | R67 | 820Ω | | | |
| R31 | 56K | | | | R68 | 2.2Ω | | | |
| R32 | 2200Ω | | | | R69 | 470Ω | | | |
| R33 | 220Ω | | | | R70 | 470Ω | | | |
| R34 | 22K 1W | | | | R71 | 470Ω | | | |
| R35 | 680Ω | | | | R72 | 9.6Ω (Cold) 3W | | | #61-30-1 |
| R36 | 56K | | | | R73 | 330Ω 5W | PW5-330Ω | 5W-SQ-330Ω | #61-183-0 |
| R37 | 47K | | | | R74 | 3000Ω 5W | PW5-3000Ω | 5W-SQ-3000Ω | #61-152-0 |
| R38 | 2200 1W | | | | R75 | 2500Ω 10W | PW10-2500Ω | 10W-SQ-2500Ω | #61-151-0 |
| R39 | 22Ω | | | | R76 | 1000Ω 5W | PW5-1000Ω | 5W-SQ-1000Ω | #61-155-0 |
| R40 | 220K | | | | R77 | 100Ω 10W | PW10-100Ω | 10W-SQ-100Ω | #61-180-0 |
| R41 | 470K | | | | R78 | 4.5Ω 10W | PW10-4.5Ω | 10W-SQ-4.5Ω | #61-152-0 |
| R42 | 2700Ω | | | | R79 | 27K | | | |
| R43 | 4700Ω | | | | R80 | 27Ω 15W | | | #61-187-0 |
| R44 | 2700Ω | | | | | | | | |

* Alternate Value. # Silvertone Part Number.

## COILS (RF-IF)

| ITEM No. | USE | REPLACEMENT DATA | | | | NOTES |
|---|---|---|---|---|---|---|
| | | SILVERTONE PART No. | Merit PART No. | Miller PART No. | Stancor PART No. | |
| L1A | 1st Video IF | 10-25-3 | | | | |
| B | 41.25MC Trap | | | | | |
| L2A | 2nd Video IF | 10-21-3 | | | | |
| B | 47.25MC Trap | | | | | |
| L3 | 3rd Video IF | 10-22-3 | | | | |
| L4 | 4th Video IF | 10-24-3 | | | | |
| L5 | RF Choke | 10-151-1 | | | | |
| L6 | RF Choke (12ah) | 10-65-1 | BC-566 | 4622 | RTC-8523 | |

## COILS (RF-IF) (cont)

| ITEM No. | USE | REPLACEMENT DATA | | | | NOTES |
|---|---|---|---|---|---|---|
| | | SILVERTONE PART No. | Merit PART No. | Miller PART No. | Stancor PART No. | |
| L7 | Peaking (60uh) | 10-64-1 | TV-193 | 6110 | RTC-8573 | |
| L8 | Peaking (26uh) | 10-147-1 | TV-198 | 6130 | RTC-8576 | |
| L9A | 4.5MC Trap | 10-153-1 | | | | ① Includes 8200Ω Resistor. |
| B | 1st Sound IF | | | | | * Parallel with 8200Ω Resistor. |
| L10 | Peaking (370uh) | 10-166-1 ① | TV-198 * | 6130 * | RTC-8576 * | |
| L11 | Peaking (26uh) | 10-147-1 | TV-198 | 6130 | RTC-8576 | |
| L12 | 2nd Sound IF | 10-23-3 | | | | ② Includes 18mmf Cap. & 220K Res. |
| L13 | Quadrature | 10-26-5 ② | | | | |
| L14 | RF Choke (2.5uh) | 10-155-1 | BC-563 | 4606 | RTC-8517 | |
| L15 | Fil. Choke (1uh) | 10-156-1 | BC-581 | 4602 | RTC-8515 | |
| L16 | Line Choke (2uh) | 10-169-1 ③ | BC-563 | 4606 | RTC-8517 | ③ Some versions may use 40uh Choke in this application |
| L17 | Line Choke (2uh) | 10-169-1 ③ | BC-563 | 4606 | RTC-8517 | |
| L18 | Line Choke (2uh) | 10-169-1 ③ | BC-563 | 4606 | RTC-8517 | |

## COILS (SWEEP CIRCUITS)

| ITEM No. | USE | REPLACEMENT DATA | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | SILVERTONE PART No. | Merit PART No. | Miller PART No. | Rogers PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. |
| L19 | Horiz. Stabilizer | 10-18-5 | | | | | | |

## TRANSFORMERS (SWEEP CIRCUITS)

| ITEM No. | USE | REPLACEMENT DATA | | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|
| | | SILVERTONE PART No. | Merit PART No. | Rogers PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | |
| T1 | Vert. Osc. | C80-3-TB | A-3006 | | VBO-201 | 26A05 | A-122X | |
| | Alt. Vert. Osc. | 80-3-7 | | | | | | |
| T2 | Vert. Output | C80-4-2S | A-2815 ① | | VO-100 ② | | A-116X ① | |
| | Alt. Vert. Output | 80-4-2 | | | | | | |
| T3 | Yoke (Horiz. 21MH) | D80-12-4A | | PCM-1834 ③④ | DY-46A ④ | Y-53 ③ | Y-62 & NW20 | |
| | 110° (Vert. 34MH) | | | | | | | |
| | Alt. Yoke | 80-12-4 | | | | | | |
| | Yoke | 80-14-4 | | | | | | |
| | Rear Cover & Centering Device | 21-404-0 | | | | | | |
| | Yoke Clamp | 22-145-3 | | | | | | |
| | Width Device | 83-1334 | | | | | | |
| T4 | Horiz. Output | D80-15-3A | | | | | D-187 ⑤ | |
| | Alt. Horiz. Output | 80-15-3 | | | | | | |

① Use 8 to 1 Turns Ratio.
② Cut and Tape red/yellow lead.
③ Use original rear cover and yoke damping network if necessary.
④ Use original yoke plug.
Connect yoke terminal #3 to plug pin #7;
Yoke terminals #2 & #7 to plug pin #5,
Yoke terminal #1 to plug pin #3.
⑤ Connect same as original.

## TRANSFORMER (AUDIO OUTPUT)

| ITEM No. | IMPEDANCE | | REPLACEMENT DATA | | | | NOTES |
|---|---|---|---|---|---|---|---|
| | PRI. | SEC. | SILVERTONE PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | |
| T5 | 6200Ω | 3-4Ω | 80-87-1-A ① | A-2935 | A-3823 ② | 24896 | S-5X | ① Alternate Part #80-87-1<br>② Drill new mounting hole(s). |

## SPEAKER

| ITEM No. | TYPE | | | REPLACEMENT DATA | | NOTES |
|---|---|---|---|---|---|---|
| | SIZE | FIELD | V. C. IMP. | SILVERTONE PART No. | QUAM PART No. | |
| SP1 | 6" | PM | 3-4Ω | 33-400-4 ① | 6A15 | ① Used in Models 1166, 1184, 1186, 1188, PC-1166, PC-1184, PC-1186, PC-1188 |
| SP2 | 6" | PM | 3-4Ω | 33-400-4 ① | 6A15 | |
| SP3 | ELECTROSTATIC | | | 84-6276 ② | | ② Used in all Models. |
| SP4 | ELECTROSTATIC | | | 84-6276 ② | | ③ Used in Models 1170, PC-1170 |
| SP5 | ELECTROSTATIC | | | 84-6276 ② | | |
| SP6 | ELECTROSTATIC | | | 84-6276 ② | | |
| 4" x 6" | PM | | | 33-471-4 ③ | | |

## COMPONENT COMBINATIONS

| ITEM No. | USE | DESCRIPTION | SILVERTONE PART No. | REPLACEMENT DATA | |
|---|---|---|---|---|---|
| K1 | Video & Sync Network | 150mmf, 5000mmf, 5000mmf, 47K, 100K, 100K, 470K, 2.2meg | 13-34-3 | Centralab | PC-396 |
| | | | | Sprague | 8T-16 |
| K2 | Sound IF Screen | 4700mmf, 68K | 13-21-3 | | |
| K3 | Audio Network | 100mmf, 5000mmf, 1000Ω, 220K, 470K, 560K | 13-25-3 | Centralab | PC-397 |
| | | | | Sprague | HN-6 |
| K4 | Vert. Integrator | 2000mmf, 5000mmf, 5000mmf, 8200Ω, 8200Ω | 13-31-3 | Aerovox | PA-110-4 |
| | | | | Centralab | PC-105 |
| | | | | Sprague | V-4 |
| K5 | Isolation | 1000mmf, 4.7meg | 13-17-3 | | |

## POWER RECTIFIERS

| ITEM No. | RATING | REPLACEMENT DATA | | | | NOTES |
|---|---|---|---|---|---|---|
| | CURRENT (Measured) | SILVERTONE PART No. | RCA PART No. | SARKES TARZIAN PART No. | SYLVANIA PART No. | |
| M1 | .330A | 86-1-3 | 1N1763 | 40H | SR300 | |
| M2 | .330A | 86-1-3 | 1N1763 | 40H | SR500 | |

## SIGNAL DIODES

| ITEM No. | ORIG. TYPE | REPLACEMENT DATA | | | | NOTES |
|---|---|---|---|---|---|---|
| | | SILVERTONE PART No. | GENERAL ELECTRIC PART No. | RAYTHEON PART No. | SYLVANIA PART No. | |
| M3 | | * | 6GD1 * | | | * Dual Selenium Diode, Series Connected |

## MISCELLANEOUS

| ITEM No. | PART NAME | SILVERTONE PART No. | NOTES |
|---|---|---|---|
| M4 | Tuner | 95-214-0 | VHF |
| M5 | Switch | 69-334-0 | Channel Selector |

## MISCELLANEOUS (cont)

| ITEM No. | PART NAME | SILVERTONE PART No. | NOTES |
|---|---|---|---|
| M6 | Switch | 69-389-0 | Power Tuning |
| M7 | Switch | 69-390-0 | Off-On |
| M8 | Motor | 59-173 | Power Tuning Drive |
| M9 | Circuit Breaker | 43-6-3 | (Automatic Power Monitor) |
| M10 | Width Device | 83-1334 | (Width Sleeve) |
| | Magnet | 27-70-2 | May be used in some versions |
| | Printed Board | 84-7369-1 | IF Sync & Sound Assembly, Less Tubes |
| | Printed Board | 35-11-0 | IF Sync & Sound Board Only |
| | Printed Board | 84-7370-3 | Vertical Oscillator Circuit Assembly, Less Tubes |
| | Printed Board | 25-13-0 | Vertical Oscillator Circuit, Board Only |
| | Printed Board | 84-7271-2 | Horizontal Oscillator Circuit Assembly, Less Tubes |
| | Printed Board | 25-12-0 | Horizontal Oscillator Circuit, Board Only |

## WIRING DATA

| | |
|---|---|
| High Voltage Lead | Use BELDEN No. 8869 |
| Shielded Hook-up Wire | Use BELDEN No. 8885 (Single Conductor)<br>8738 (Two Conductor) |
| General-use Unshielded Hook-up Wire | Use BELDEN No. 8530 (Solid) Available in Ten Colors<br>8524 (Stranded) Available in Ten Colors |
| Power Cord (Interlock Type) | Use BELDEN No. 8874 |
| 300Ω Tuner Input Lead | Use BELDEN No. 8225 |
| 300Ω Antenna Lead-in | Use BELDEN No. 8230 or 8275 |
| Antenna Rotor Cable | Use BELDEN No. 8464 (Flat) or 8484 (Round) - 4 Conductor<br>8485 (Round) - 5 Conductor<br>8488 (Round) - 8 Conductor |

# REMOTE CONTROL RECEIVER PARTS LIST

## TUBES

| ITEM No. | GENERAL ELECTRIC / RAYTHEON / SYLVANIA | | ITEM No. | | |
|---|---|---|---|---|---|
| | USE | TYPE | | USE | TYPE |
| V16 | 42KC Amp. | 6AU6 | V20 | Off-On Vol. Relay Control Amp. - Channel Selector | 6AW8A |
| V17 | 38KC Amp. | 6AU6 | | Relay Control Amp. | 6AW8A |
| V18 | 40KC Amp. | 6AU6 | V21 | Rectifier | 6X4 |
| V19 | 38KC Det. - 42KC Det. | 6AL5 | | | |

## ELECTROLYTIC CAPACITORS

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|
| | CAP. | VOLT. | SILVERTONE PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | PYRAMID PART No. | SPRAGUE PART No. | TECHNICAL PART No. | |
| C58A | ■ 20 | 250 | 18-13-4 | AFH3-17 | C0230 | FB33.6 | TMT-3217 | TVL-3531 | | |
| B | ▲ 20 | 250 | | | | | | | | |
| C | 5 | 250 | | | | | | | | |

## FIXED CAPACITORS

**Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING | | REMARKS | REPLACEMENT DATA | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. | |
| C69 | 10000 | | | BPD-01 | DD-103 | BYA10B | CCD-103 | B-110 | 5HK-B10 | |
| C70 | 470 | | | BPD-00047 | DD-473 | BYA10T47 | CCD-471 | B-347 | 10TB-T47 | |
| C71 | 10000 | | | BPD-01 | DD-103 | BYA10B | CCD-103 | B-110 | 5HK-B10 | |
| C72 | 150 | N750 | 10% | 1469-0012 | DTN-150 | C10T15U | CCTN-151 | CNT-315 | 10TCU-T15 | |
| C73 | 120 | | 10% | 1469-00012 | TCZ-120 | 22R3T22 | CM-19B-121K | CNO-312 | MS-312 | |
| C74 | 150 | N750 | 10% | N750-DI 150 | DTN-150 | C10T15U | CCTN-151 | CNT-315 | 10TCU-T15 | |
| C75 | 180 | | 10% | 1469-00018 | TCZ-180 | 22R3T18 | CM-19B-181K | CNO-318 | MS-318 | |
| C76 | 470 | | | BPD-00047 | DD-471 | BYA10T47 | CCD-471 | B-347 | 10TB-T47 | |
| C77 | 1000 | | | BPD-01 | DD-102 | BYA10B | CCD-102 | B-110 | 5HK-B10 | |
| C78 | 10000 | | | BPD-01 | DD-102 | BYA10B | CCD-103 | B-110 | 5HK-B10 | |
| C79 | 220 | N470 | | #15-22J163 | | | | | | |
| C80 | 2200 | | 5% | 1469-0022 | | 1R5D22 | CM-19B-222J | MCJ459 | MS-222 | |
| C81 | 330 | N750 | 5% | | TCN-330 | C10T33U | | CNT-333 | 10TCU-T33 | |
| C82 | 2700 | | 5% | 1469-0027 | | 1R5D27 | CM-20B-272J | MCJ460.5 | MS-227 | |
| C83 | 330 | N750 | 5% | | TCN-330 | C10T33U | | CNT-333 | 10TCU-T33 | |
| C84 | .22 | 200V | | P288N-22 | | CUB4P22 | 2DP-4-224 | GEM-2022 | 2TM-P22 | |
| C85 | .22 | 200V | | P288N-22 | | CUB4P22 | 2DP-4-224 | GEM-2022 | 2TM-P22 | |
| C86 | .1 | 200V | | P288N-1 | DF-104 | CUB2P1 | 2DP-3-104 | GEM-201 | 2TM-P10 | |
| C87 | .22 | 200V | | P288N-22 | | CUB2P22 | 2DP-4-224 | GEM-2022 | 2TM-P22 | |

# Silvertone Part Number.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

## CONTROLS

| ITEM No. | RATING | | REPLACEMENT DATA | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|
| | RESISTANCE | WATTS | SILVERTONE PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | MALLORY PART No. | |
| R81A | 500K | ½ | 24-453 | TT-59 | B47-500K-S | PTA55L | Noise Level |
| B | Shaft | | | Not Reg. | Not Reg. | Not Reg. | |

## RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

| ITEM No. | RATING | REPLACEMENT DATA | | | ITEM No. | RATING | REPLACEMENT DATA | | |
|---|---|---|---|---|---|---|---|---|---|
| | | IRC PART No | WORKMAN TV PART No. | REMARKS | | | IRC PART No. | WORKMAN TV PART No. | REMARKS |
| R82 | 1meg | | | | R91 | 150Ω | | | |
| R83 | 1meg | | | | R92 | 1meg | | | |
| R84 | 100K | | | | R93 | 9100Ω | | | * 10K |
| R85 | 150Ω | | | | R94 | 1meg | | | |
| R86 | 1meg | | | | R95 | 47000Ω | | | |
| R87 | 1meg | | | | R96 | 47K | | | |
| R88 | 1meg | | | | R97 | 1000Ω | | | |
| R89 | 5600Ω | | | | R98 | 330K | | | |
| R90 | 33K | | | | | | | | |

* Alternate Value.

SILVERTONE CHASSIS 456.52280, 301, 302, 528.52280, 301, 302

FOLDER 2

# REMOTE CONTROL RECEIVER PARTS LIST (Continued)

## COILS (RF-IF)

| ITEM No. | USE | REPLACEMENT DATA | | | | NOTES |
|---|---|---|---|---|---|---|
| | | SILVERTONE PART No. | Merit PART No. | Miller PART No. | Stancor PART No. | |
| L20 | 42KC Coil | 10-31-4 | | | | |
| L21 | 38KC Coil | 10-31-5 | | | | |
| L22 | 40KC Trans. | 10-32-5 | | | | |
| L23 | 38KC Coil | 10-33-5 | | | | |
| L24 | 42KC Coil | 10-33-5 | | | | |

## TRANSFORMER (POWER)

| ITEM No. | RATING | | | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. 1 | SEC. 2 | SILVERTONE PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | |
| T6 | 117V ② .22A | 350VCT ③ .030A DC Tap ④ 20V ⑤ .001A DC | 6.3V ⑥ 2.3A | 80-41-0-C ① | | | | | ① Alternate Part #80-41-0 |

## POWER RECTIFIERS

| ITEM No. | RATING | REPLACEMENT DATA | | | | NOTES |
|---|---|---|---|---|---|---|
| | CURRENT (Measured) | SILVERTONE PART No. | RCA PART No. | SARKES TARZIAN PART No. | SYLVANIA PART No. | |
| M11 | | 86-6-1 | | | | Selenium Diode, Relay Bias |

## MISCELLANEOUS

| ITEM No. | PART NAME | SILVERTONE PART No. | NOTES |
|---|---|---|---|
| M12 | Switch | 84-9185 | Assembly, Remote Off-On, Includes Slide Switch #69-341-0 |
| M13 | Relay | 69-1-1 | |
| M14 | Relay | 69-2-1 | |
| M15 | Transducer | 33-46-1 | Includes Brackets |

# REMOTE CONTROL TRANSMITTER PARTS LIST AND DESCRIPTIONS

## TRANSISTORS

| ITEM No. | ORIG. TYPE | USE | REPLACEMENT DATA | | | NOTES |
|---|---|---|---|---|---|---|
| | | | RCA PART No. | RAYTHEON PART No. | SYLVANIA PART No. | |
| X1 | 2N406 | Oscillator | 2N406 | 2N633 | 2N406 | PNP |

## FIXED CAPACITORS

**Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
| C88 | 10000 | | | DM-103 | H-05S1 | | B-110 | TG-S10 |
| C89 | 330 5% | | 1469-00033 | TCZ-330 | 22R5T33 | CM-19B-331J | | MS-333 |
| C90 | 91 5% | | 1469-000091 | TCZ-91 | 22R5Q91 | CM-19B-910J | | MS-491 |
| C91 | 7-35 N750 | #19-4-5 | | 827Z | | | | |

# Silvertone Part Number.

## RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

| ITEM No. | RATING | REPLACEMENT DATA | | | ITEM No. | RATING | REPLACEMENT DATA | | |
|---|---|---|---|---|---|---|---|---|---|
| | | IRC PART No. | WORKMAN TV PART No. | REMARKS | | | IRC PART No. | WORKMAN TV PART No. | REMARKS |
| R99 | 15K | | | | | | | | |

## COILS (RF-IF)

| ITEM No. | USE | REPLACEMENT DATA | | | | NOTES |
|---|---|---|---|---|---|---|
| | | SILVERTONE PART No. | Merit PART No. | Miller PART No. | Stancor PART No. | |
| L25 | Osc. | 10-64-4 | | | | |

## BATTERIES

| ITEM No. | VOLTAGE | SILVERTONE PART No. | REPLACEMENT DATA | | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | | | BURGESS | | EVEREADY | | MALLORY | | |
| | | | "A" | "B" | "A" | "B" | "A" | "B" | |
| M16 | 4V | 6415 | | | | E-163 | | TR-163 | |

## MISCELLANEOUS

| ITEM No. | PART NAME | SILVERTONE PART No. | NOTES |
|---|---|---|---|
| M17 | Switch | 84-9162 | Assembly, Off-On, Volume |
| M18 | Switch | 84-9166 | Assembly, Channel Selector |
| M19 | Transducer | 33-45-1 | |

## CABINETS & CABINET PARTS

| ITEM | PART No. | MODEL 1166, PC-1166 | 1170, PC-1170 | 1184, PC-1184 | 1186, PC-1186 | 1188, PC-1188 |
|---|---|---|---|---|---|---|
| Safety Glass | 48-160-0 | | | X | X | X |
| Mask | 40-19-4 | | | X | X | X |
| Window, Channel Indicator | 48-166-1 | X | X | X | X | X |
| Knob, Channel Selector | 52-1414-0 | X | X | X | X | X |
| Dial, Channel Indicator | 67-683-0 | X | X | X | X | X |
| Knob, Fine Tuning | 52-1358-0 | X | X | X | X | X |
| Knob, Controls | 52-1413-0 | X | X | X | X | X |
| Push Bar - Silvertone | 52-1415-0 | X | X | X | X | X |
| Push Bar - Medalist | 52-1416-0 | X | X | X | X | X |
| Remote Pushbutton, Vol., Chan. | 52-1319-0 | X | X | X | X | X |
| Cabinet, Remote Transmitter | 21-148-1 | X | X | X | X | X |
| Cabinet Back, Remote Trans. | 21-614-0 | X | X | X | X | X |
| Cabinet, TV | 42-187-0 | X | | | | |
| Cabinet, TV | 42-209-0 | | X | | | |

| ITEM | PART No. | MODEL 1166, PC-1166 | 1170, PC-1170 | 1184, PC-1184 | 1186, PC-1186 | 1188, PC-1188 |
|---|---|---|---|---|---|---|
| Cabinet, TV | 42-211-0 | | | X | | |
| Cabinet, TV | 42-212-0 | | | | X | |
| Cabinet, TV | 42-210-0 | | | | | X |
| Leg, Cabinet, Front | 49-612 | X | | | | |
| Leg, Cabinet, Front | 49-664 | | X | | | |
| Leg, Cabinet, Front | 49-609 | | | X | | |
| Leg, Cabinet, Front | 49-754 | | | | X | |
| Leg, Cabinet, Front | 49-610 | | | | | X |
| Leg, Cabinet, Rear | 49-613 | X | | | | |
| Leg, Cabinet, Rear | 49-664 | | X | | | |
| Leg, Cabinet, Rear | 49-609 | | | X | | |
| Leg, Cabinet, Rear | 49-754 | | | | X | |
| Leg, Cabinet, Rear | 49-611 | | | | | X |

## VHF TUNER ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

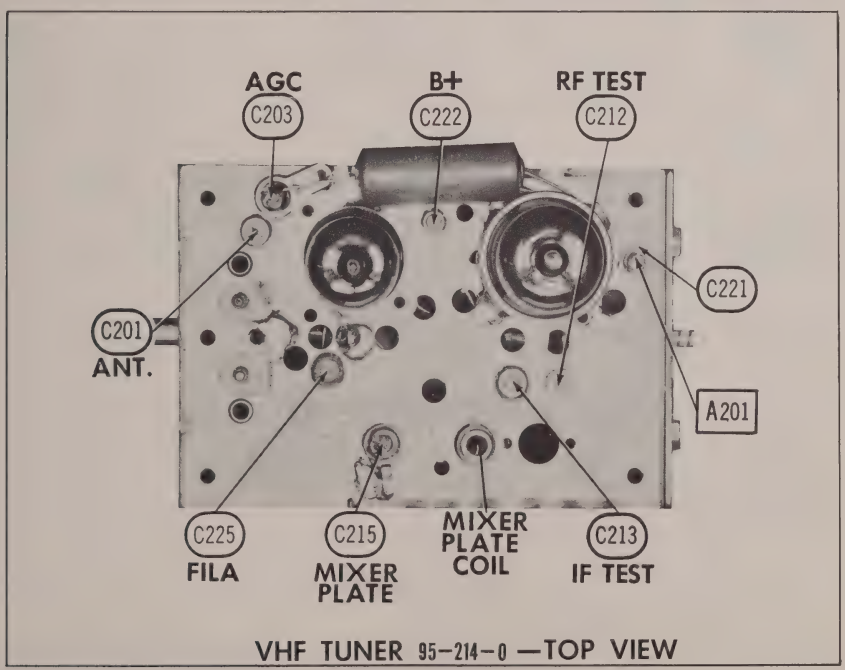
Suggested Alignment Tools: GENERAL CEMENT #5003, 8271, 8275, 8276, 8609, 8721, 8722, 9150, 9298
WALSCO #2516, 2518, 2519

OSCILLATOR ALIGNMENT

Turn set on and allow 10 minutes warm-up period. Turn to the highest channel received in your area and set the Fine Tuning to the center of its range.
Adjust A201 for clearest picture. Turn the Channel Selector to the next operating channel and adjust the Fine Tuning for clearest picture. Adjust the Fine Tuning for each channel for best picture.
If on any channel, the Fine Tuning cannot clear the picture up, retouch A201 and readjust the Fine Tuning for all channels.

RF AND MIXER ALIGNMENT

This portion of the tuner has been properly aligned at the factory and is very stable. Alignment of this portion should not be attempted in the field.




VHF TUNER 95-214-0 —TOP VIEW

# TUNER PARTS LIST AND DESCRIPTIONS

## 95-214-0

### TUBES

| • GENERAL ELECTRIC • RAYTHEON • SYLVANIA • | | | | | |
|---|---|---|---|---|---|
| ITEM No. | USE | TYPE | ITEM No. | USE | TYPE |
| V201 | RF Amp. | 2CY5 | V202 | Mixer - Osc. | 5CL8 |

### FIXED CAPACITORS

**Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
| C201 | 15 N750 10% | #258-150 | | | | | | |
| C202 | 5 N750 5% | | | DTN-5 | C10V5U | CCTN-050 | CN7-550 | 10TCU-Q15 |
| C203 | 1000 5% | | EF-001 | MFT-1000 | | CCF-102 | CT280A | |
| C204 | 1000 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C205 | .91 10% | #2101-918 | | | | | | |
| C206 | 47 N750 10% | | N750-DI 47 | DTN-47 | C10Q47U | CCTN-470 | CN7-447 | 10TCU-Q47 |
| C207 | 1000 5% | | EF-001 | MFT-1000 | | CCF-102 | CT280A | |
| C208 | 1.5 10% | | NPO-SI 1.5 | TCZ-1R5 | C10V15C | | CNO-515 | 10TCC-V15 |
| C209 | .33 10% | #2101-338 | | | | | | |
| C210 | .39 10% | #2101-398 | | | | | | |
| C211 | 15 10% | | DI-15 | DD-150 | L10Q15 | CCD-150 * | GP415 | 10TS-Q15 |
| C212 | 100 N3300 10% | #252-101 | | | | | | |
| C213 | 1.5 N750 5% | #259-159 | | | | | | |
| C214 | 1000 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C215 | 91 | #253-910 | | | | | | |
| C216 | 1000 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C217 | 1.8 10% | | NPO-SI 2.0 | | C10V2C | | | 10TCC-V18 |
| C218 | 10 NPO 5% | | NPO-SI 10 | TCZ-10 | C10Q10C | CCTO-100 * | CNO-410 | 10TCU-Q10 |
| C219 | 2.2 N330 | #166-229 | | | | * | | |
| C220 | 68 N470 5% | #218-680 | | | | * | | |
| C221 | | #1620-13 | | | | | | |
| C222 | 1000 | | EF-001 | MFT-1000 | | CCF-102 | CT280A | |
| C223 | 1000 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C224 | 1000 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C225 | 1000 5% | | EF-001 | MFT-102 | | CCF-102 | CT280A | |

# Silvertone Part Number.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

### RESISTORS

**All wattages 1/2 watt, or less, unless otherwise listed.**

| ITEM No. | RATING | REPLACEMENT DATA | | REMARKS |
|---|---|---|---|---|
| | | IRC PART No. | WORKMAN TV PART No. | |
| R201 | 12K | | | |
| R202 | 1500Ω | | | |
| R203 | 39K | | | |
| R204 | 22K | | | |
| R205 | 15K | | | |
| R206 | 15K | | | |

| ITEM No. | RATING | REPLACEMENT DATA | | REMARKS |
|---|---|---|---|---|
| | | IRC PART No. | WORKMAN TV PART No. | |
| R207 | 2200Ω | | | |
| R208 | 27K | | | |
| R209 | 12K | | | |
| R210 | 4700Ω | | | |
| R211 | 220K | | | |

### COILS (RF-IF)

| ITEM No. | USE | SILVERTONE PART No. | NOTES |
|---|---|---|---|
| L201 | Antenna Trans. | 2309-5 | |
| L202 | RF Choke | 310-4 | |
| L203 | RF Choke | 310-4 | |
| L204 | Antenna Coils | 2343-1 | Channels 2-13, Includes Wafer Assembly |
| L205 | RF Choke | 363-7 | |
| L206 | RF Coils | 2344-1 | " |
| L207 | RF Choke | 301-23 | |
| L208 | Mixer Grid Coils | 2344-1 | " |

| ITEM No. | USE | SILVERTONE PART No. | NOTES |
|---|---|---|---|
| L209 | RF Choke | 362-6 | |
| L210 | RF Choke | 310-5 | |
| L211 | Osc. Coils | 3434-9 | Channels 2-13, Includes Wafer Assembly |
| L212 | RF Choke | 301-13 | |
| L213 | Mixer Plate Coil | 2110-9 | |
| L214 | Fil. Choke | 350-20 | |
| L215 | Fine Tuning Coil | 3362-501 | Includes Plunger Assembly |

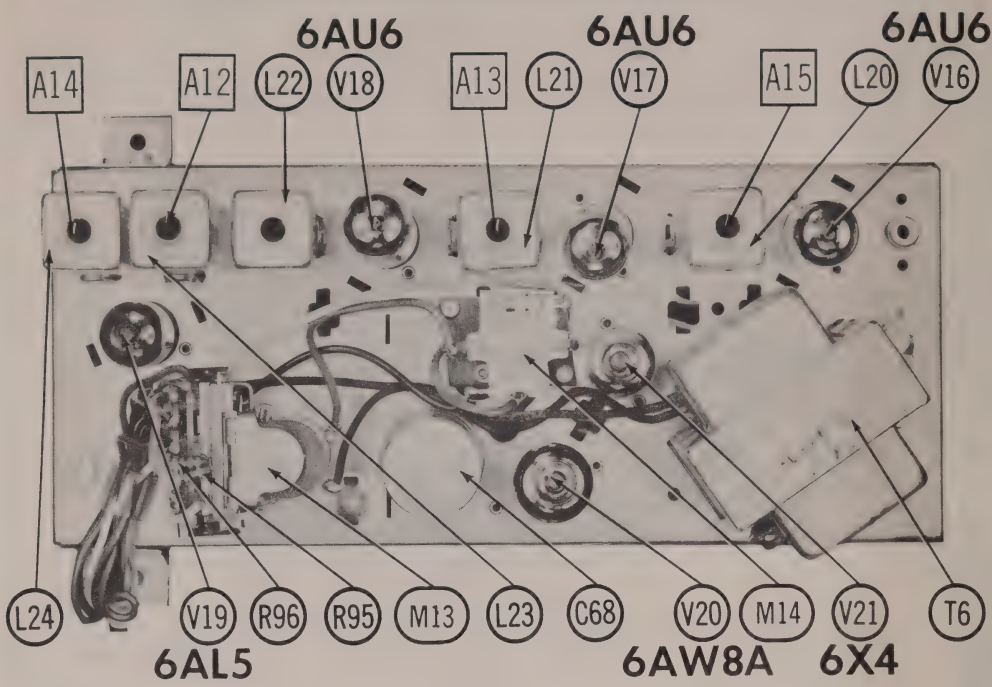
### COMPONENT COMBINATIONS

| ITEM No. | USE | DESCRIPTION | SILVERTONE PART No. | REPLACEMENT DATA |
|---|---|---|---|---|
| K201 | Antenna Filter Feed-Thru | * | | |
| K202 | Antenna Filter Feed-Thru | * | | |

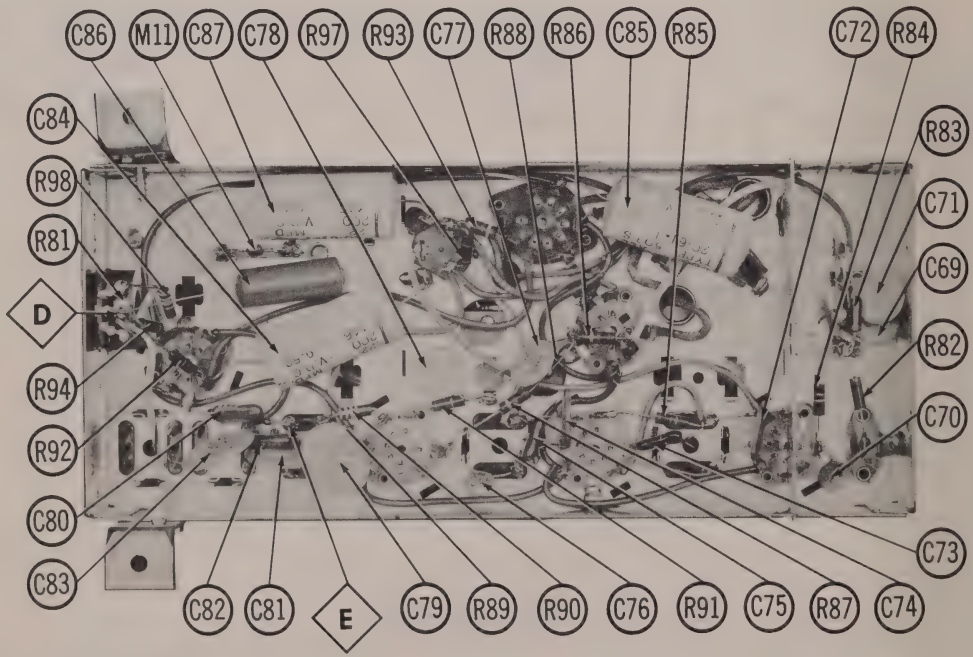
* Some versions may use component combination (470mmf, 600K to 1meg), Part #330-1.

### MISCELLANEOUS

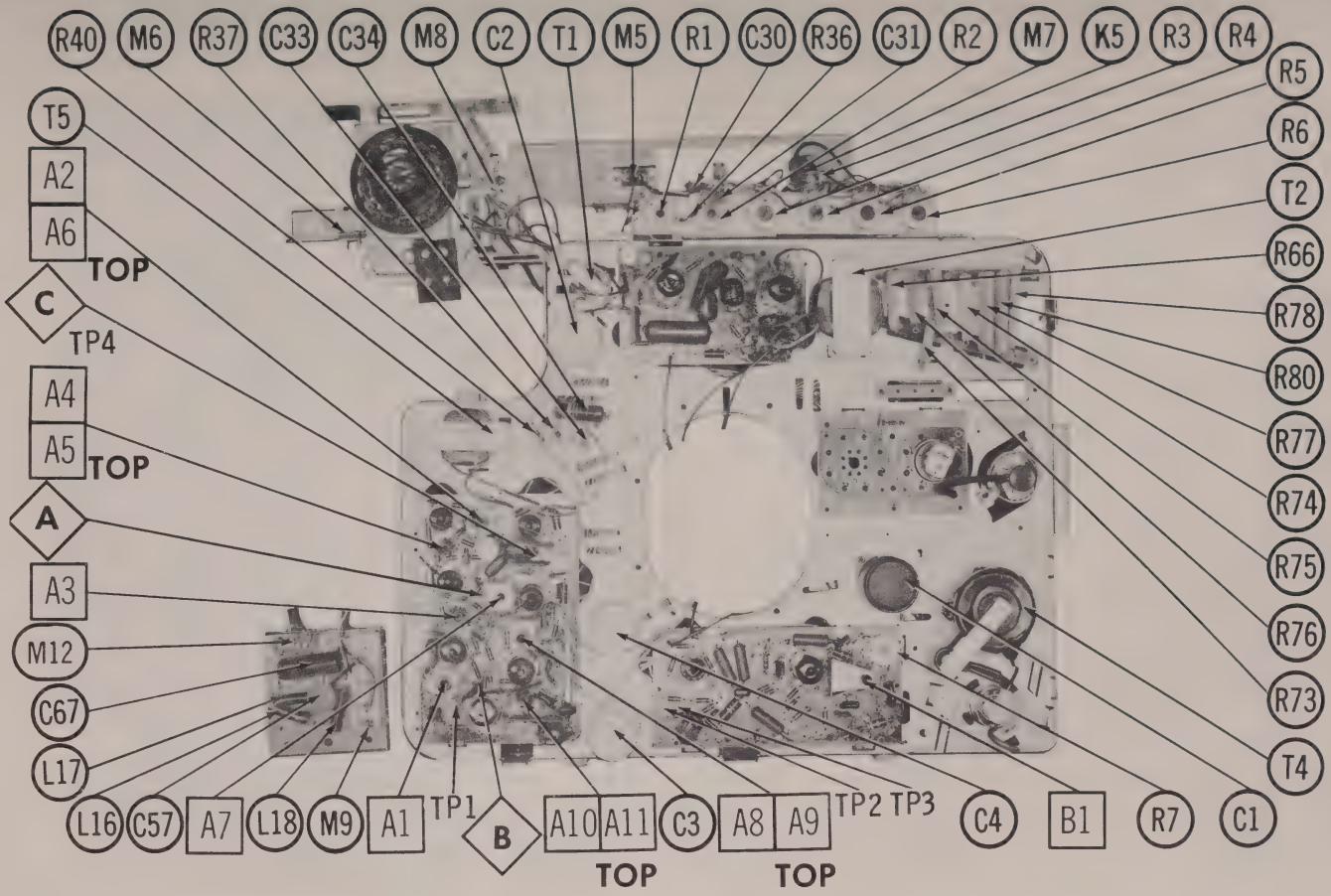
| ITEM No. | PART NAME | SILVERTONE PART No. | NOTES |
|---|---|---|---|
| | Selector Shaft | 1752-83 | Assembly |




REMOTE CONTROL RECEIVER - TOP VIEW




REMOTE CONTROL RECEIVER - BOTTOM VIEW




| | | | | | |
|---|---|---|---|---|---|
| TP1 | -.4V | VIDEO AMP GRID | TP3 | .2V | IF AGC |
| TP2 | .3V | TUNER AGC | TP4 | 0V | AUDIO COUPLATE OUTPUT |

TV CHASSIS - TOP VIEW

SILVERTONE CHASSIS 456.52280, 528.52280, 301, 302, 302

FOLDER 2

# RESISTANCE MEASUREMENTS
## TV

| ITEM | TUBE | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| V1 | 3BZ6 | 60K | 56Ω | 3Ω | 4Ω | †4000Ω | †4000Ω | 0Ω | | |
| V2 | 3BZ6 | 57K | 56Ω | 4Ω | 5Ω | †4000Ω | †4000Ω | 0Ω | | |
| V3 | 5AM8 | 220Ω | 0Ω | †3500Ω | 5Ω | 7Ω | †3500Ω | 0Ω | 3300Ω | 0Ω |
| V4 | 6BA8A | 0Ω | 2.2meg | †475K | 9Ω | 7Ω | ● 30Ω | 3300Ω | †4700Ω | †5200Ω |
| V5 | 3AU6 | †50K | †490Ω | 16Ω | 17Ω | 275K | ‡ 80K | †490Ω | | |
| V6 | 5U8 | †10K | 4Ω | †73K | 9Ω | 11Ω | †4700Ω | 220Ω | 2700Ω | †475K |
| V7 | 3DT6 | 5.2Ω | 680Ω | 11Ω | 12Ω | ‡ 710K | †22K | 560K | | |
| V8 | 5AQ5 | NC | 220Ω | 12Ω | 14Ω | †1250Ω | †1100Ω | ● 0Ω | | |
| V9 | 6S4A | NC | 230Ω | ● 1.6meg | 19Ω | 21Ω | NC | NC | NC | ● ‡ 5.8meg |
| V10 | 12DT5 | †330Ω | NC | ● 1.3meg | 21Ω | 23Ω | NC | 150Ω | NC | †656Ω |
| V11 | 6CG7 | †6200Ω | 2.5meg | 820Ω | 16Ω | 14Ω | †50K | ● 85K | 820Ω | NC |
| V12 | 12DQ6B | NC | 23Ω | NC | †7400Ω | 470K | TP | 25Ω | 0Ω | TOP CAP †10Ω |
| V13 | 17DE4 | NC | NC | ¶ | NC | †100Ω | NC | 25Ω | 28Ω | |
| V14 | 1G3GT 1B3GT | PINS 1 THRU 8 HAVE INFINITE RESISTANCE | | | | | | | | TOP CAP †420Ω |
| V15 | 23CP4 | 19Ω | 100K | ‡ 22K | ● ‡ 800K | NC | NC | ● 700K | 17Ω | |
| V201 | 2CY5 | 1meg | 0Ω | 3Ω | 2Ω | †4000Ω | †13K | 0Ω | | |
| V202 | 5CL8 | 15K | †14K | 0Ω | 2Ω | 0Ω | †4700Ω | †30K | 0Ω | 225K |
| ITEM | TUBE | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
● THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
† MEASURED FROM OUTPUT OF M2.
‡ MEASURED FROM PIN 3 OF V13.

NC NO CONNECTION
TP TIE POINT

# REMOTE CONTROL

| ITEM | TUBE | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| V16 | 6AU6 | 2.1meg | 0Ω | 0Ω | .1Ω | ■ 218Ω | ■150Ω | 0Ω | | |
| V17 | 6AU6 | ■218Ω | ■150Ω | 0Ω | .1Ω | ††1000Ω | ††1000Ω | INF | | |
| V18 | 6AU6 | 2meg | 0Ω | 0Ω | .1Ω | ††1100Ω | ††34K | 150Ω | | |
| V19 | 6AL5 | ● 1.5meg | ● 500K | 0Ω | .1Ω | ● 1.5meg | 0Ω | ● 500K | | |
| V20 | 6AW8A | 0Ω | ● 1.5meg | ††2500Ω | .1Ω | 0Ω | 0Ω | ● 1.5meg | ††9100Ω | ††6000Ω |
| V21 | 6X4 | 350Ω | TP | 0Ω | .1Ω | TP | 423Ω | ¶ | | |

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
● THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
†† MEASURED FROM PIN 7 OF V21.
■ MEASURED FROM PIN 7 OF V17.

NC NO CONNECTION
TP TIE POINT

RESISTANCE MEASUREMENTS FOR X1 NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

A Howard W. Sams CIRCUITRACE® Photo

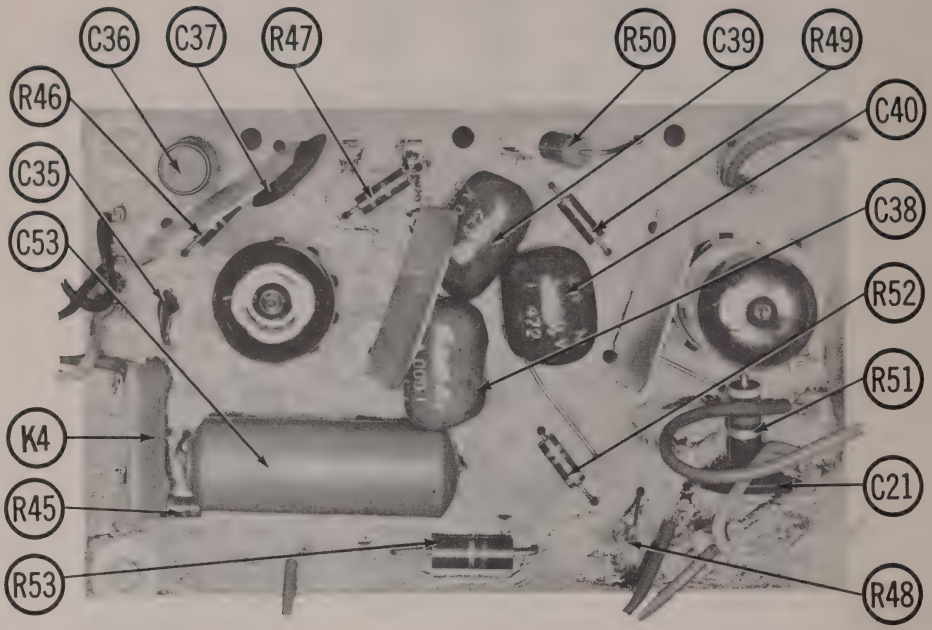
ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED

VERT. OSC., OUTPUT PRINTED BOARD

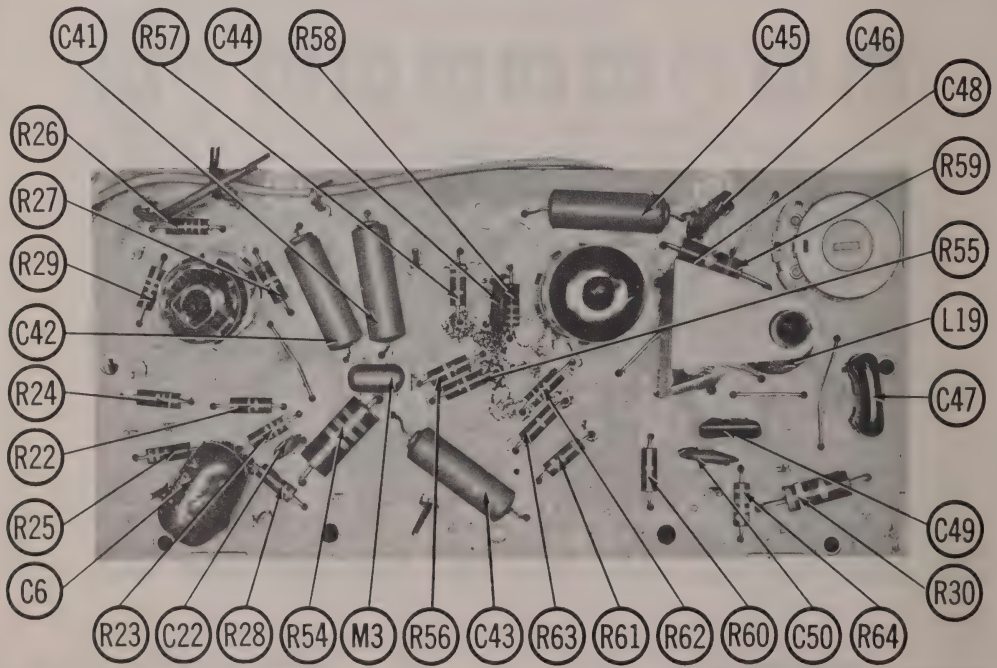
A Howard W. Sams CIRCUITRACE® Photo

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED

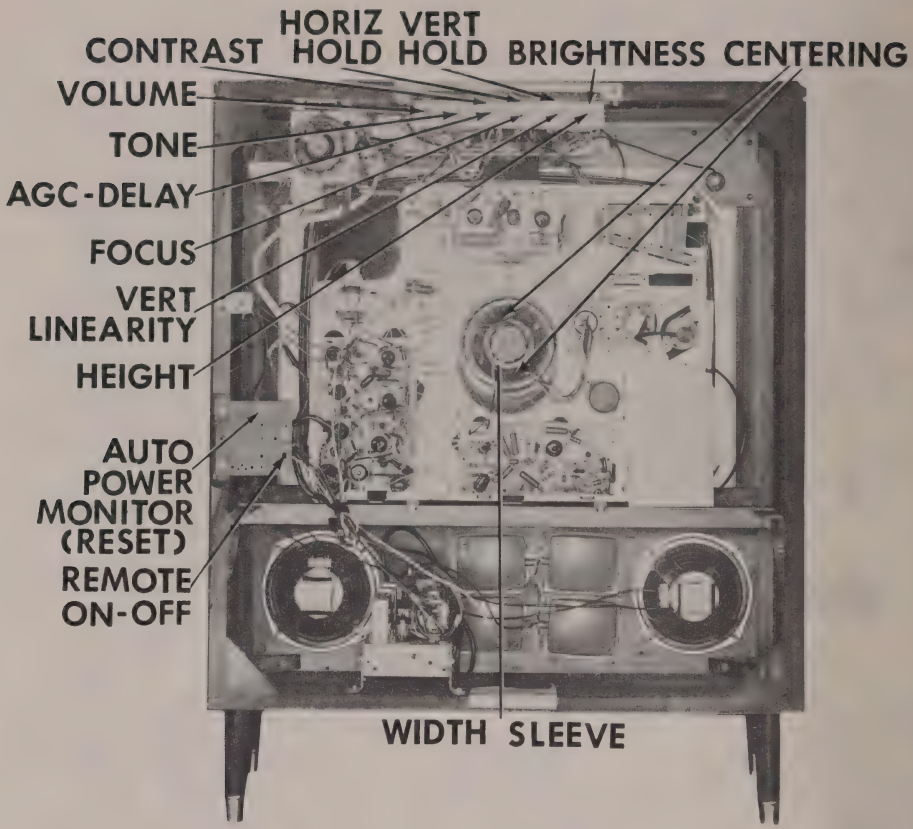
HORIZ. AFC, OSC., & AGC PRINTED BOARD




VERT. OSC., OUTPUT PRINTED BOARD




HORIZ. AFC, OSC., & AGC PRINTED BOARD




CABINET—REAR VIEW

## HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV signal preferably with a test pattern.

Set the Horizontal Hold to the center of its range. Adjust the Horizontal Frequency Slug (B1) until the picture synchronizes horizontally.

Rotate the Horizontal Drive clockwise until Drive Lines (vertical white lines or bars) appear in the picture. Turn control counterclockwise until drive line just disappears. If necessary, repeat adjustment of B1.

## DISASSEMBLY INSTRUCTIONS

TV CHASSIS REMOVAL MODEL 1166, PC-1166

1. Remove 8 wood screws holding rear cover.
2. Remove rear cover.
3. Remove picture tube socket, yoke plug, high voltage lead, 2 screws holding circuit breaker panel, and speaker leads.
4. Remove 2 screws holding control panel and 2 screws holding tuner mounting bracket.
5. Remove 2 screws holding (channel indicator-on/off switch) bracket.
6. Remove Remote Control Receiver Plug from TV chassis.
7. Remove 2 chassis bolts.
8. Remove chassis.

PICTURE TUBE REMOVAL MODEL 1166, PC-1166

1. Remove rear cover.
2. Remove yoke, picture tube socket, and high voltage lead.
3. Remove 4 screws (inside cabinet) holding Bezel and Picture Tube assembly.
4. Pull assembly out front.

PHOTOFACT® Folder

**PRODUCTION CHANGE BULLETIN 253**

PRODUCTION CHANGE
BULLETIN 253

## SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 2 IN SET 505

AIRLINE MODELS WG-5200B, WG-5209B, WG-5210B, WG-5300B, WG-5309B, WG-5310B

Airline Models WG-5200A, WG-5209A, WG-5210A, WG-5300A, WG-5309A, WG-5310A were covered in PHOTOFACT Folder 2 - Set 505.

Models WG-5200B, WG-5209B, WG-5210B, WG-5300B, WG-5309B, WG-5310B are electrically similar except for the following changes.

VERTICAL CIRCUIT CHANGES

K3 is changed to Part #76X19. This couplate is composed of two 100K Resistors in series. A .002mfd Capacitor is connected from the junction of the 100K Resistors to ground.

T1 is omitted.

R37 is omitted.

C27 is omitted.

C26 is decreased from .01mfd to .0047 mfd. This Capacitor is connected directly to pin 7 of V7A (10DE7).

Pin 8 of V7A (10DE7) is connected to ground.

R35 is decreased from 470K to 68K.

(Continued On The Reverse Side)

## SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 19 IN SET 500

ZENITH MODEL ROYAL 710 (CH. 7CT43Z5)

Zenith Model Royal 710L (Ch. 7CT43Z1) was covered in PHOTOFACT Folder 19 - Set 500.

Model Royal 710 (Ch. 7CT43Z5) which is electrically similar except for the following changes is added with the publication of this bulletin.

TRANSISTOR CHANGES

X1 (Mixer) is changed to a Type 121-145.

X3 (1st IF Amp.) is changed to a Type 121-146.

X4 (2nd IF Amp.) is changed to a Type 121-147.

TRANSFORMER CHANGES

L3 (1st IF Trans.) is changed to Part #95-1750.

L4 (2nd IF Trans.) is changed to Part #95-1748.

L5 (3rd IF Trans.) is changed to Part #95-1749.

COMPONENT CHANGES

R4 is omitted.

R12 is omitted.

C13 is omitted.

R15 is increased from 1000Ω to 2200Ω.

PRODUCTION CHANGE
BULLETIN 253

**HOWARD W. SAMS & CO., INC.** Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1960 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

R4 (Vertical Hold Control) is decreased from 1meg to 200K (Part #40X484).

R36 is increased from 820K to 2.2meg.

C28 is decreased from .047 mfd to .003 mfd.

R42 is increased from 4700Ω to 15K.

C17 is decreased from .047 mfd to .033mfd.

R39 is decreased from 2.2meg to 1.5meg.

COMPONENTS ADDED

A .1 mfd@ 400VDC Capacitor is added from pin 1 of the yoke socket to ground.

Two 56K 1 watt Resistors are added in series from pin 1 of V7B (10DE7) to pin 7 of V7A (10DE7) through a .0047 mfd Capacitor.

A 1000 mmf Capacitor is added from the junction of the previously added 56K Resistors to ground.

A 1000 mmf Capacitor is added from pin 7 of V7A (10DE7) to ground.

SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 3 IN SET 486

Admiral Models 618, 619, 722, 723, 724, 729, 771 (Ch. 4F3), SS722, SS723, SS724, SS729 (Remote Speaker Unit) were covered in PHOTOFACT Folder 3 - Set 486.

Models Y4057, Y4081, Y4082, Y4083 (Ch. 4F3A) are electrically similar except for the following changes.

COMPONENTS OMITTED

M3 (Stereo-Standard Switch) is omitted.

R4 is omitted.

R11 is omitted.

COMPONENT CHANGES

C5 is increased from 35mmf to 100mmf.

C11 is increased from 35mmf to 100mmf.

C6 is increased from .001 to .0033.

C12 is increased from .001 to .0033.

R5 is decreased from 100K to 22K.

R12 is decreased from 100K to 22K.

R18 is increased from 1000Ω 2 watt to 4700Ω 2 watt.

T1 is changed to Part #80B69-1.

SPEAKER ADDED

A new speaker system is used in the models added. A partial schematic diagram showing the speaker hook-up is given in this bulletin.

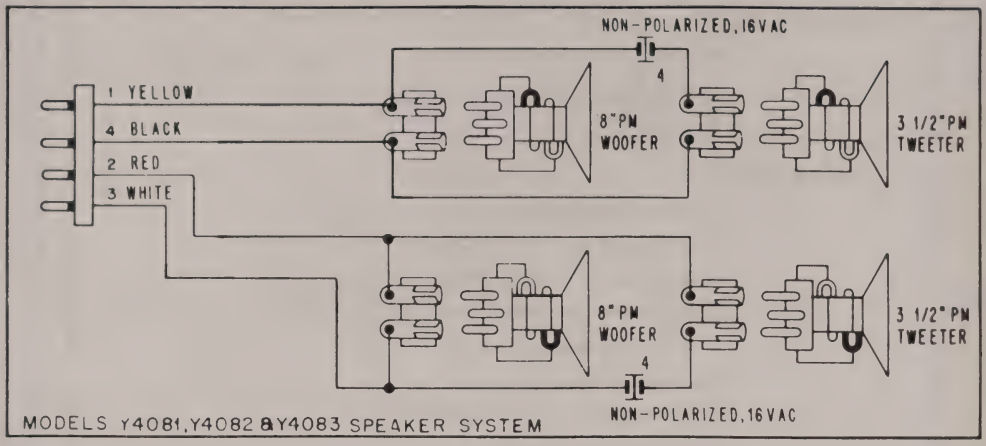
ADMIRAL MODELS Y4057, Y4081, Y4082, Y4083 (CH. 4F3A)

(Continued On The Reverse Side)

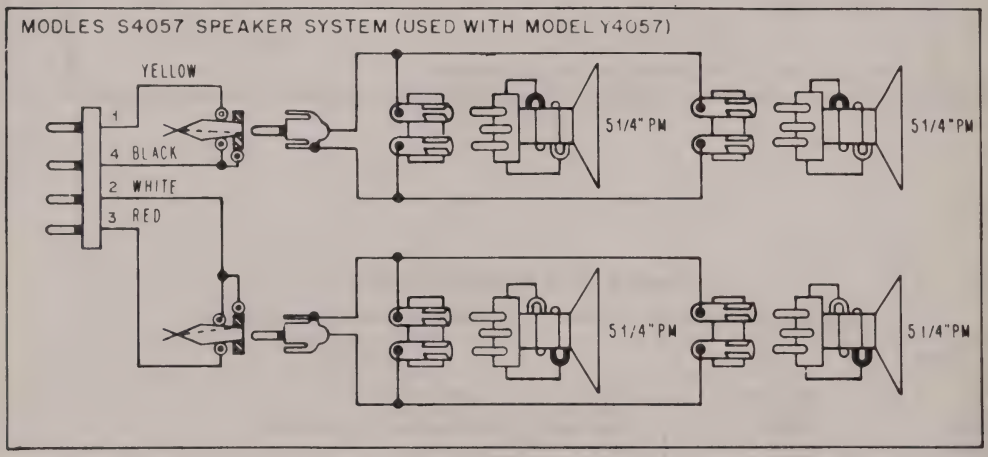
## CABINETS & CABINET PARTS

**(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)**

| NAME | PART NO. | DESCRIPTION |
|---|---|---|
| Knob | 33C254-27 | Balance, Loudness, Tone, All Models |
| Cabinet | 35E622-1 | Rosewood & Bronze, Model Y4057 |
| Cabinet | 35E619-1 | Model SS4057 (External Speakers used with Y4057) |
| Cabinet | 35E626-1 | Walnut, Model Y4081 |
| Cabinet | 35E626-2 | Mahogany, Model Y4082 |
| Cabinet | 35E626-3 | Blond, Model Y4083 |
| Cabinet Leg | 35E626-51 | Model Y4081 |
| Cabinet Leg | 35E626-52 | Model Y4082 |
| Cabinet Leg | 35E626-53 | Model Y4083 |
| Handle | 35E622-51 | Model Y4057 |



MODELS Y4081, Y4082 & Y4083 SPEAKER SYSTEM




Speaker System Courtesy of Admiral Corporation

# PHOTOFACT® Folder

**ESQUIRE MODELS**
**2525, 2526**

ESQUIRE MODELS
2525, 2526

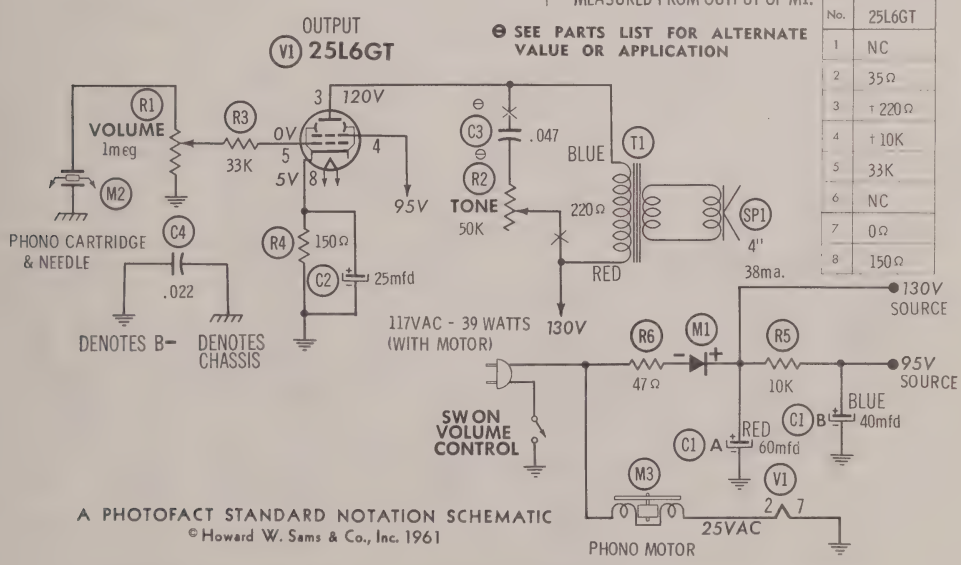
MODEL 2526

| | |
|---|---|
| TRADE NAME | Esquire Models 2525, 2526 |
| MANUFACTURER | Esquire Radio Corp., 6201 15th Street, Brooklyn, N. Y. |
| TYPE SET | AC Operated One Tube Phono Amplifier With 3-Speed Manual Record Player |
| POWER SUPPLY | 110 – 120 Volts AC, 60 Cycles RATING 39 Watts, .42 Amp. @117 Volts AC |

† MEASURED FROM OUTPUT OF M1.

ϴ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

| Pin No. | V1 25L6GT |
|---|---|
| 1 | NC |
| 2 | 35Ω |
| 3 | † 220Ω |
| 4 | † 10K |
| 5 | 33K |
| 6 | NC |
| 7 | 0Ω |
| 8 | 150Ω |




A PHOTOFACT STANDARD NOTATION SCHEMATIC

© Howard W. Sams & Co., Inc. 1961

**HOWARD W. SAMS & CO., INC.** Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

KR317



SET 518 FOLDER 4

# PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | USE | TYPE | ITEM No. | USE | TYPE |
|---|---|---|---|---|---|
| | ♦ GENERAL ELECTRIC ♦ | | RAYTHEON ♦ | | SYLVANIA ♦ |
| V1 | Output | 25L6GT | | | |

## ELECTROLYTIC CAPACITORS

| ITEM No. | RATING CAP. | RATING VOLT. | REPLACEMENT DATA ESQUIRE PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | PYRAMID PART No. | SPRAGUE PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| C1A | 60 | 150 | E3232 | PRS2230 | BBRD8415 | TCD4975 | TDLD-11 | TVA-2461 | |
| B | 40 | 150 | | | | | | | |
| C2 | 25 | 25 | E3230 | XPP25025 | BBR25-25 | TC26 | TD-25-25 | TVA-1205 | |

## FIXED CAPACITORS

**Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|
| C3 | .047 400V | Note 1 | P488N-047 | DD-503 | CUB4S47 | 4DP-3-473 | GEM-4147 | 4TM-S47 |
| C4 | .022 400V | Note 1 | P488N-022 | DD-203 | CUB4S22 | 4DP-2-223 | GEM-4122 | 4TM-S22 |

Note 1. Not used in Model 2525.

## CONTROLS

| ITEM No. | RATING RESISTANCE | RATING WATTS | REPLACEMENT DATA ESQUIRE PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | CTS-IRC PART No. | MALLORY PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| R1A | 1meg | ½ | E-2544 | B-70-S | A47-1meg-Z | Q13-137 | U53 | Volume |
| B | Shaft | | | Not Req. | KSS-3 | Not Req. | Not Req. | |
| C | Switch | | | Not Req. | SWE-12 | 76-1 | US-26 | Power Off-On |
| R2A | 50K | ½ | E2545 | B-31 | A47-50K-S | Q11-123 | U35 | Tone, Note 1 |
| B | Shaft | | | Not Req. | KSS-3 | Not Req. | Not Req. | |

Note 1. Not used in Model 2525.

## RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

| ITEM No. | RATING | REMARKS | ITEM No. | RATING | REMARKS | ITEM No. | RATING | REMARKS |
|---|---|---|---|---|---|---|---|---|
| R3 | 33K | | R5 | 10K | | | | |
| R4 | 150Ω | | R6 | 47Ω | | | | |

## TRANSFORMER (AUDIO OUTPUT)

| ITEM No. | IMPEDANCE PRI. | IMPEDANCE SEC. | REPLACEMENT DATA ESQUIRE PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|
| T1 | 2600Ω | 3-4Ω | (Part of SP1) | A-3025 | A-3332 | 24S53 | S-12X | |

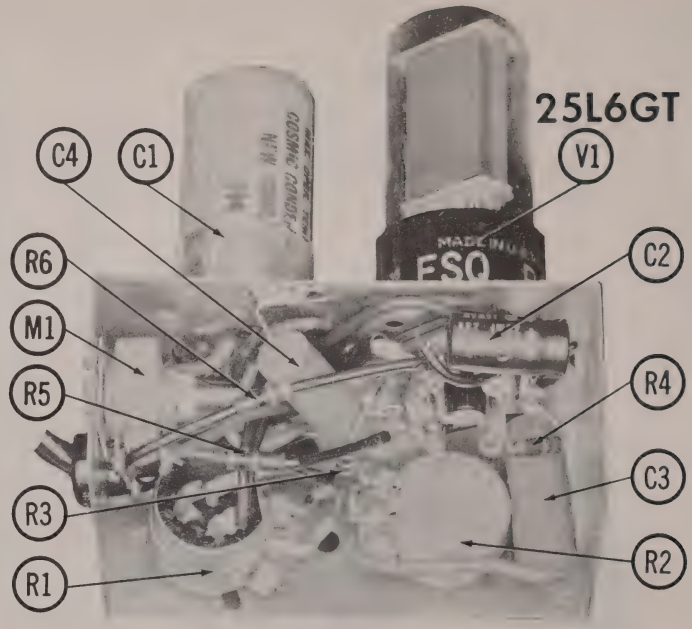
## SPEAKER

| ITEM No. | TYPE SIZE | TYPE FIELD | TYPE V. C. IMP. | REPLACEMENT DATA ESQUIRE PART No. | QUAM PART No. | NOTES |
|---|---|---|---|---|---|---|
| SP1 | 4" | PM | 3-4Ω | E103X * | 4A07 | * Includes T1 |

## POWER RECTIFIERS

| ITEM No. | RATING CURRENT (Measured) | REPLACEMENT DATA ESQUIRE PART No. | RCA PART No. | SARKES TARZIAN PART No. | SYLVANIA PART No. | NOTES |
|---|---|---|---|---|---|---|
| M1 | .038A | E145 * | 1N1763 ♦ | 65 * | SR200 ♦ | * Selenium Type<br>♦ Silicon Type |

# CHASSIS—BOTTOM VIEW




## PHONO CARTRIDGE & NEEDLES

*NEEDLE LISTINGS SHOWN ARE FOR RESPECTIVE REPLACEMENT CARTRIDGES ONLY.

| ITEM No. | ESQUIRE PART No. CARTRIDGE | ESQUIRE PART No. NEEDLE* | ASTATIC PART No. CARTRIDGE | ASTATIC PART No. NEEDLE* | ELECTRO-VOICE PART No. CARTRIDGE | ELECTRO-VOICE PART No. NEEDLE* | SONOTONE PART No. CARTRIDGE | SONOTONE PART No. NEEDLE* | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| M2 | SN45P | SN45 * | 420-TS-TB | N8-1 * & N8-3 * | 46 | Not Req. | | | |

## MISCELLANEOUS

| ITEM No. | PART NAME | ESQUIRE PART No. | NOTES |
|---|---|---|---|
| M3 | Motor<br>Idler Wheel | E8019 | 3 Speed Phono Drive<br>Walsco Part #1490-01 |

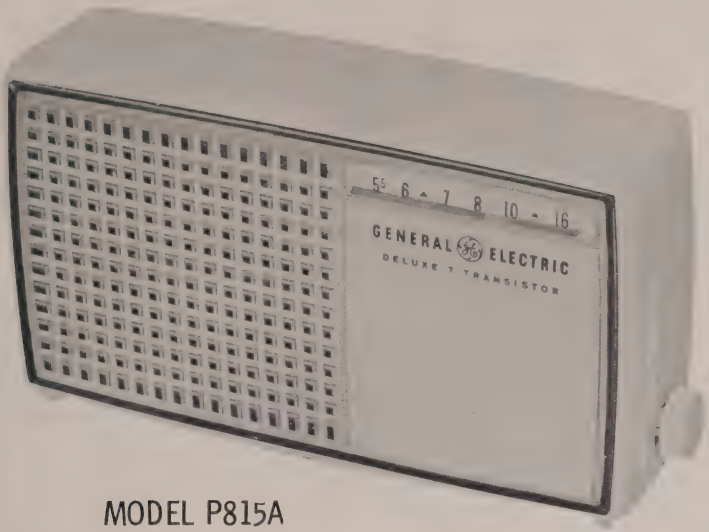
## WIRING DATA

| | |
|---|---|
| General-use Unshielded Hook-up Wire | Use BELDEN No. 8530 (Solid) Available in Ten Colors<br>8524 (Stranded) Available in Ten Colors |
| Power Cord | Use BELDEN No. 1765-B (6 Ft. Length)<br>1725-K (7½ Ft. Length) |
| Low-Loss Shielded Lead (Interconnecting) | Use BELDEN No. 8401 |
| Phono Pick-up Arm Cable | Use BELDEN No. 8430 (Two Conductor - Twisted) |

PHOTOFACT® Folder with CIRCUITRACE®

# GENERAL ELECTRIC MODELS P815A, P816A

GENERAL ELECTRIC
MODELS P815A, P816A




## MODEL P815A

| | |
|---|---|
| TRADE NAME | General Electric Models P815A, P816A |
| MANUFACTURER | General Electric Co., Product Service, Radio Receiver Dept., 869 Broad Street, Utica, N. Y. |
| TYPE SET | Battery Operated Transistorized Portable AM Receiver |
| POWER SUPPLY | 9 Volts DC RATING 8MA @ 9 Volts DC (No Signal, Min. Volume) |
| TUNING RANGE—BROADCAST | 540 — 1600KC 15MA @ 9 Volts DC(Signal, Normal Volume ) |

## ALIGNMENT INSTRUCTIONS

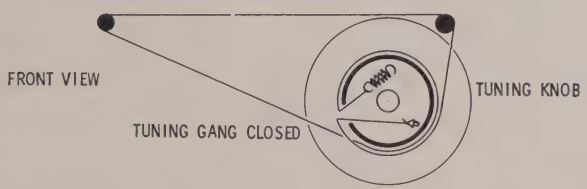
ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools: A1, A2, A3... GENERAL CEMENT #5004, 5009, 8195, 8274, 8275, 8607, 8728, 8987, 8988, 8989, 9291
WALSCO #2515, 2520, 2522, 2523, 2531, 2532, 2534, 2537, 2538
A4, A5..... GENERAL CEMENT #5004, 5008, 5009
WALSCO #2520
A6..... GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8729, 8987, 8988, 8989
WALSCO #2515, 2531, 2532

| | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | OUTPUT METER | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| 1. | Loop | 455KC (400∿ Mod.) | Tuning gang fully open. | Across voice coil. | A1, A2, A3 | Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output. |
| 2. | " | 1630KC | " | " | A4 | " |
| 3. | " | 1400KC | 1400KC Signal. | " | A5 | Adjust for maximum output while rocking tuning gang. |
| 4. | " | 580KC | 580KC Signal. | " | A6 | " |

## TUNING DRIVE CORD STRINGING



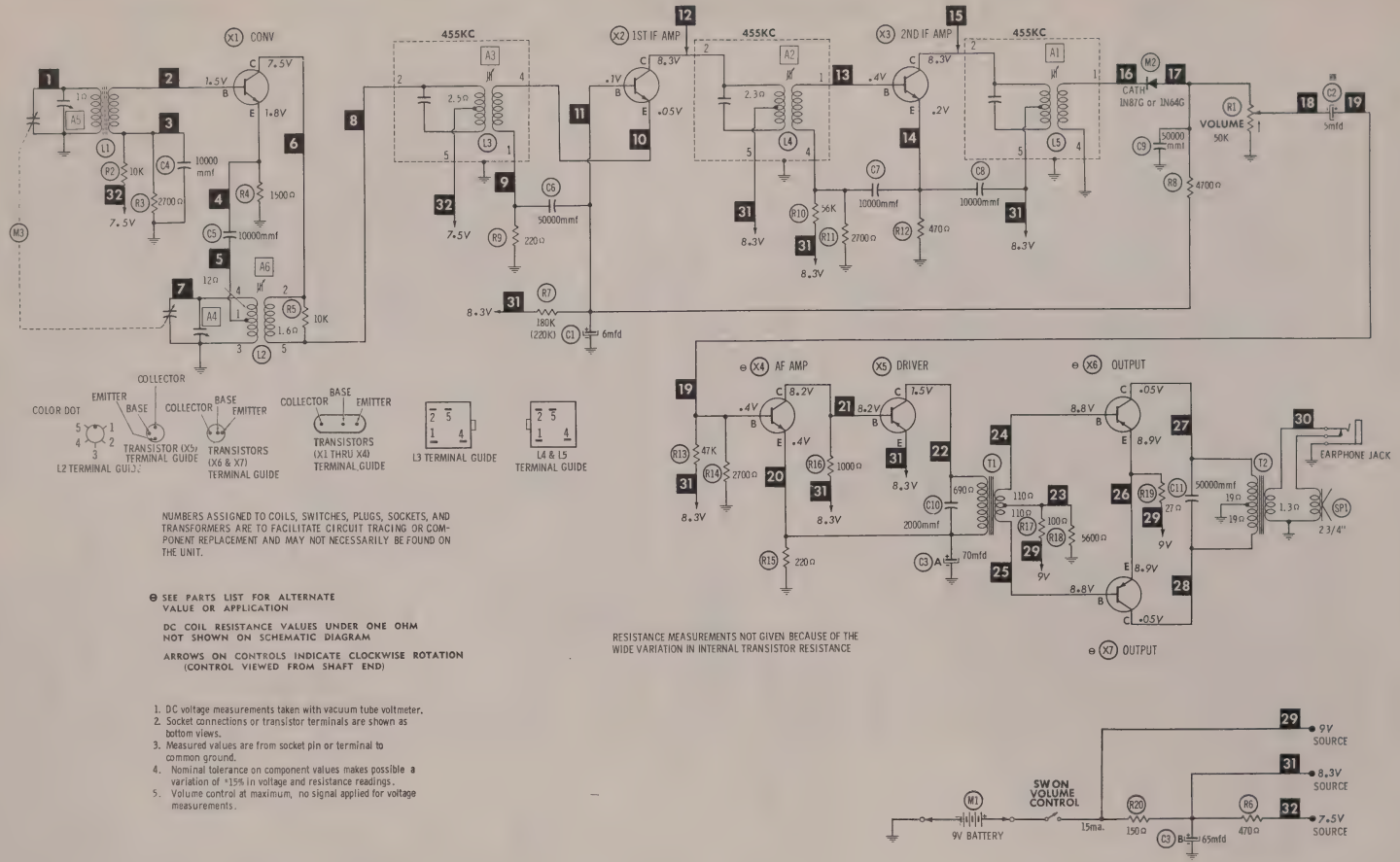

**HOWARD W. SAMS & CO., INC.** Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of KF320

the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America



SET 518 FOLDER 5




NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections or transistor terminals are shown as bottom views.
3. Measured values are from socket pin or terminal to common ground.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE™

© Howard W. Sams & Co., Inc. 1961

**GENERAL ELECTRIC MODELS P815A, P816A**

# PARTS LIST AND DESCRIPTIONS

## WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

## TRANSISTORS

| ITEM No. | MFGR. PART NO. | USE | REPLACEMENT DATA | | | NOTES |
|---|---|---|---|---|---|---|
| | | | RCA PART No. | RAYTHEON PART No. | SYLVANIA PART No. | |
| X1 | RS-2364 | Converter | | 2N1366 | | NPN |
| X2 | RS-1547 | 1st IF Amp. | | 2N1367 | 2N94 | NPN |
| X3 | RS-2365 | 2nd IF Amp. | | 2N1362 | | NPN |
| X4 | RS-2366† | AF Amp. | 2N406 | | | NPN |
| X5 | RS-2367 | Driver | 2N406 | 2N362 | | PNP |
| X6 | RS-2373* | Output | 2N408 | 2N632 | | PNP } Matched |
| X7 | RS-2373* | Output | 2N408 | 2N632 | | PNP } Pair |

† Alternate Part #RS-1513.
* Alternate Part #RS-2374, RS-2375.

## ELECTROLYTIC CAPACITORS

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | CAP. | VOLT. | G. E. PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | PYRAMID PART No. | SPRAGUE PART No. | |
| C1 | 6 | 15 | RS-2614 | XPP-15006 | NLW6-25 | TT25X6 | ML6-15 | TE-1153 | ① |
| C2 | 5 | 12 | RS-2609 | XPP-12005 | NLW5-12 | TT12X5 | ML5-12 | TE-1127 | |
| C3A | 70 | 6 | | BCD10X8080 | | | | VL-2350 | |
| B | 65 | 12 | | | | | | | |

① Some versions may use 2mfd@25V in this application (Part #RS-2615).

## FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
| C4 | 10000 | | C80V103AM | DM-103 | H-05S1 | | TA-110 | TG-S10 |
| C5 | 10000 | | C80V103AM | DM-103 | H-05S1 | | TA-110 | TG-S10 |
| C6 | 50000 | | C80V503AM | DDA-503 | H-05S5 | | TA-150 | TG-S50 |
| C7 | 10000 | | C80V103AM | DM-103 | H-05S1 | | TA-110 | TG-S10 |
| C8 | 10000 | | C80V103AM | DM-103 | H-05S1 | | TA-110 | TG-S10 |
| C9 | 50000 | | C80V503AM | DDA-503 | H-05S5 | | TA-150 | TG-S50 |
| C10 | 2000 | | BPD-002 | DM-202 | BYA10D2 | CCD-102 | B-220 | 5HK-D20 |
| C11 | 50000 | | C80V503AM | DDA-503 | H-05S5 | | TA-150 | TG-S50 |

## CONTROLS

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| | RESISTANCE | WATTS | G. E. PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | CTS-IRC PART No. | MALLORY PART No. | |
| R1 | 50K | 1/4 | RS-1993 | | | | | Volume & Switch |

## RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

| ITEM No. | RATING | REMARKS |
|---|---|---|
| R2 | 10K | |
| R3 | 2700Ω | |
| R4 | 1500Ω | |
| R5 | 10K | |
| R6 | 470Ω | |
| R7 | 180K | (220K) * |
| R8 | 4700Ω | |

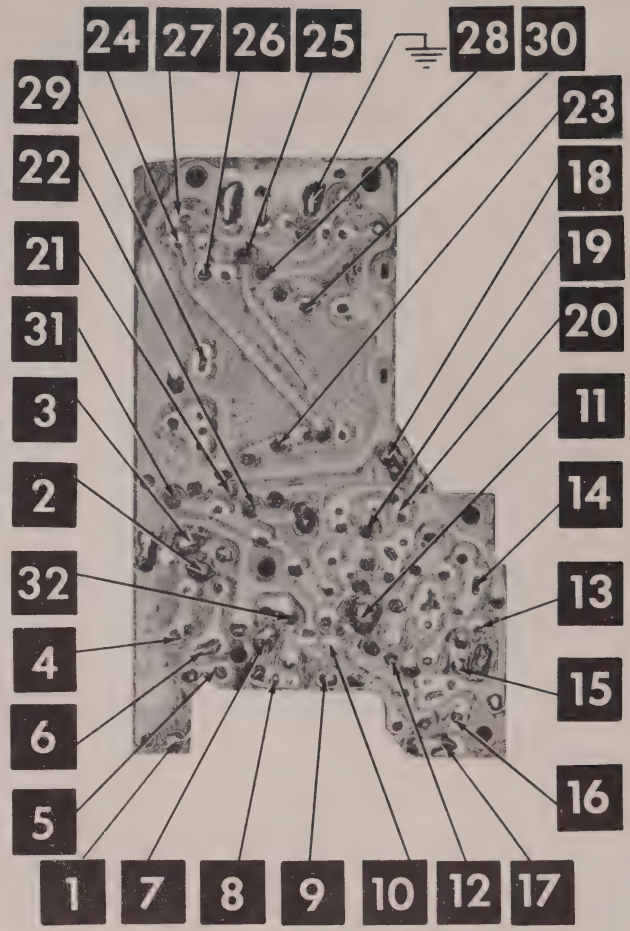
| ITEM No. | RATING | REMARKS |
|---|---|---|
| R9 | 220Ω | |
| R10 | 56K | |
| R11 | 2700Ω | |
| R12 | 470Ω | |
| R13 | 47K | |
| R14 | 2700Ω | |
| R15 | 220Ω | |

| ITEM No. | RATING | REMARKS |
|---|---|---|
| R16 | 1000Ω | |
| R17 | 100Ω | |
| R18 | 5600Ω | |
| R19 | 27Ω | |
| R20 | 150Ω | |

* Used When X2 is 2N94-362.

# PRINTED BOARD

A Howard W. Sams CIRCUITRACE® Photo



# PARTS LIST AND DESCRIPTIONS (Continued)

## COILS (RF-IF)

| ITEM No. | USE | REPLACEMENT DATA G. E. PART No. | Merit PART No. | Miller PART No. | Stancor PART No. | NOTES |
|---|---|---|---|---|---|---|
| L1 | Loopstick | RS-2607 | | | | |
| L2 | Osc. Coil | RS-2605 | | | | |
| L3 | 1st IF Trans. | RS-2602 | | | | |
| L4 | 2nd IF Trans. | RS-2603 | | | | |
| L5 | 3rd IF Trans. | RS-2604 | | | | |

## TRANSFORMER (DRIVER)

| ITEM No. | TURNS RATIO PRI. | SEC. | REPLACEMENT DATA G. E. PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|
| T1 | 1.5 | 1 | RS-2601 | | TA-28 | | | |

## TRANSFORMER (AUDIO OUTPUT)

| ITEM No. | IMPEDANCE PRI. | SEC. | REPLACEMENT DATA G. E. PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|
| T2 | 400Ω CT | 14-16Ω | RS-2600 | | TA-20 | TR-16 | | |

## SPEAKER

| ITEM No. | TYPE SIZE | FIELD | V. C. IMP. | REPLACEMENT DATA G. E. PART No. | QUAM PART No. | NOTES |
|---|---|---|---|---|---|---|
| SP1 | 2 3/4" | PM | 14-16Ω | RB-1166 | 27A06Z12 | |

## BATTERIES

| ITEM No. | VOLTAGE | G. E. PART No. | REPLACEMENT DATA BURGESS "A" | BURGESS "B" | EVEREADY "A" | EVEREADY "B" | MALLORY "A" | MALLORY "B" | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| M1 | 9V | | | P6 | | 226 | | M-1600 | |

## SIGNAL DIODES

| ITEM No. | ORIG. TYPE | REPLACEMENT DATA G. E. PART No. | GENERAL ELECTRIC PART No. | RAYTHEON PART No. | SYLVANIA PART No. | NOTES |
|---|---|---|---|---|---|---|
| M2 | 1N87G or 1N64G | RS-1811 | | | 1N87 or 1N64 | Detector (Pigtail) |

## MISCELLANEOUS

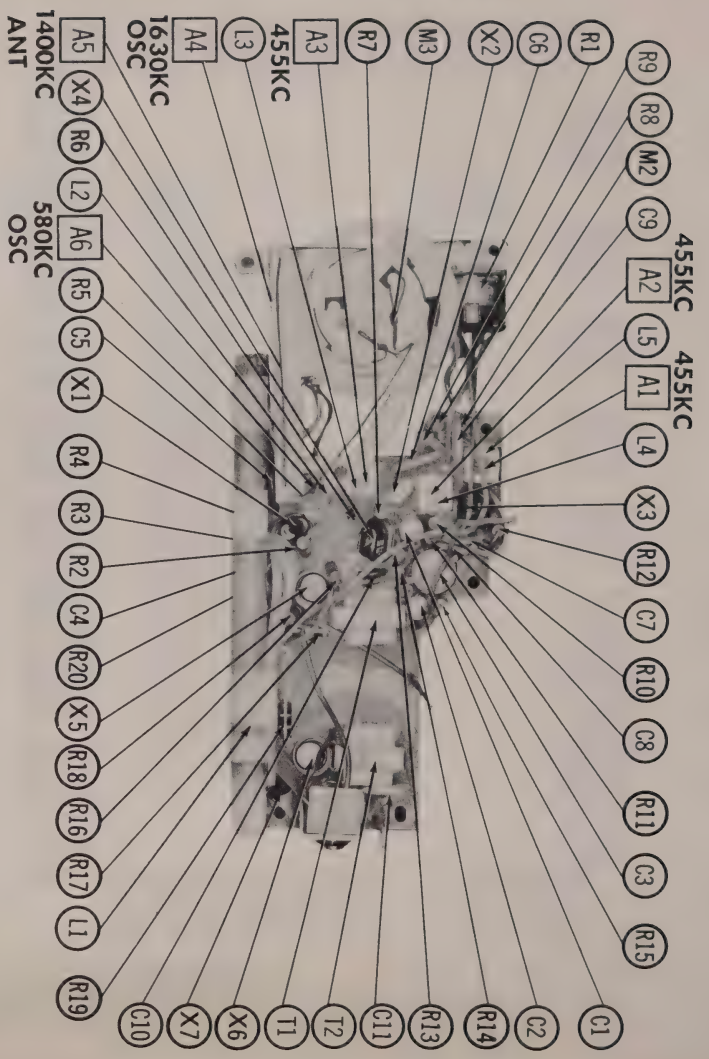
| ITEM No. | PART NAME | G. E. PART No. | NOTES |
|---|---|---|---|
| M3 | Tuning Cap. | RS-1992 | 2 Gang |

## CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

| NAME | PART NO. | DESCRIPTION |
|---|---|---|
| Dial Pointer | RS-1977 | |
| Knob | RS-1968 | Tuning |
| Knob | RS-1970 | Volume, Model P815A |
| Knob | RS-2595 | Volume, Model P816A |
| Cabinet Back | RB-1159 | Model, P815A |
| Cabinet Back | RB-1160 | Model, P816A |
| Cabinet Front | RB-1158 | |

## CHASSIS—TOP VIEW



PHOTOFACT® Folder

# NORELCO MODELS L3X76T-01, -02, -04, -05, -07, -10

NORELCO MODELS L3X76T-01, -02, -04, -05, -07, -10

MODEL L3X76T-07

| | | | |
|---|---|---|---|
| TRADE NAME | Norelco Models L3X76T-01, L3X76T-02, L3X76T-04, L3X76T-05, L3X76T-07, L3X76T-10 | | |
| SUPPLIER | North American Philips Co., Inc., 230 Duffy Ave., Hicksville, N. Y. | | |
| TYPE SET | Battery Operated Transistorized Portable BC-SW Receiver | | |
| POWER SUPPLY | 9 Volts DC | RATING | 14MA @ 9 Volts DC (No Signal, Min. Volume)<br>20MA @ 9 Volts DC (Signal, Normal Volume) |
| TUNING RANGE—BROADCAST | 517-1622KC | SHORT WAVE | 1.622 – 4MC |

## ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.
Suggested Alignment Tools: A1 thru A7, All. GENERAL CEMENT #8721, 8722
WALSCO #2519

| | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | OUTPUT METER | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| 1. | Loop | 452KC (400∿ Mod.) | (BC) Tuning gang fully open. | Across voice coil. | A1, A2, A3, A4, A5, A6 | Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output. |
| 2. | " | 512KC | (BC) Tuning gang fully closed. | " | A7 | " |
| 3. | " | 1635KC | (BC) Tuning gang fully open. | " | A8 | " |
| 4. | " | 600KC | (BC) 600KC Signal. | " | A9 | " |
| 5. | " | 1500KC | (BC) 1500KC Signal. | " | A10 | Adjust for maximum output. Repeat Steps 2 thru 5. |
| 6. | " | 1.6MC | (SW) Tuning gang fully closed. | " | A11 | Adjust for maximum output. |
| 7. | " | 4.1MC | (SW) Tuning gang fully open. | " | A12 | " |
| 8. | " | 1.8MC | (SW) 1.8MC Signal. | " | A13 | " |
| 9. | " | 3.8MC | (SW) 3.8MC Signal. | " | A14 | Adjust for maximum output. Repeat Steps 6 thru 9. |

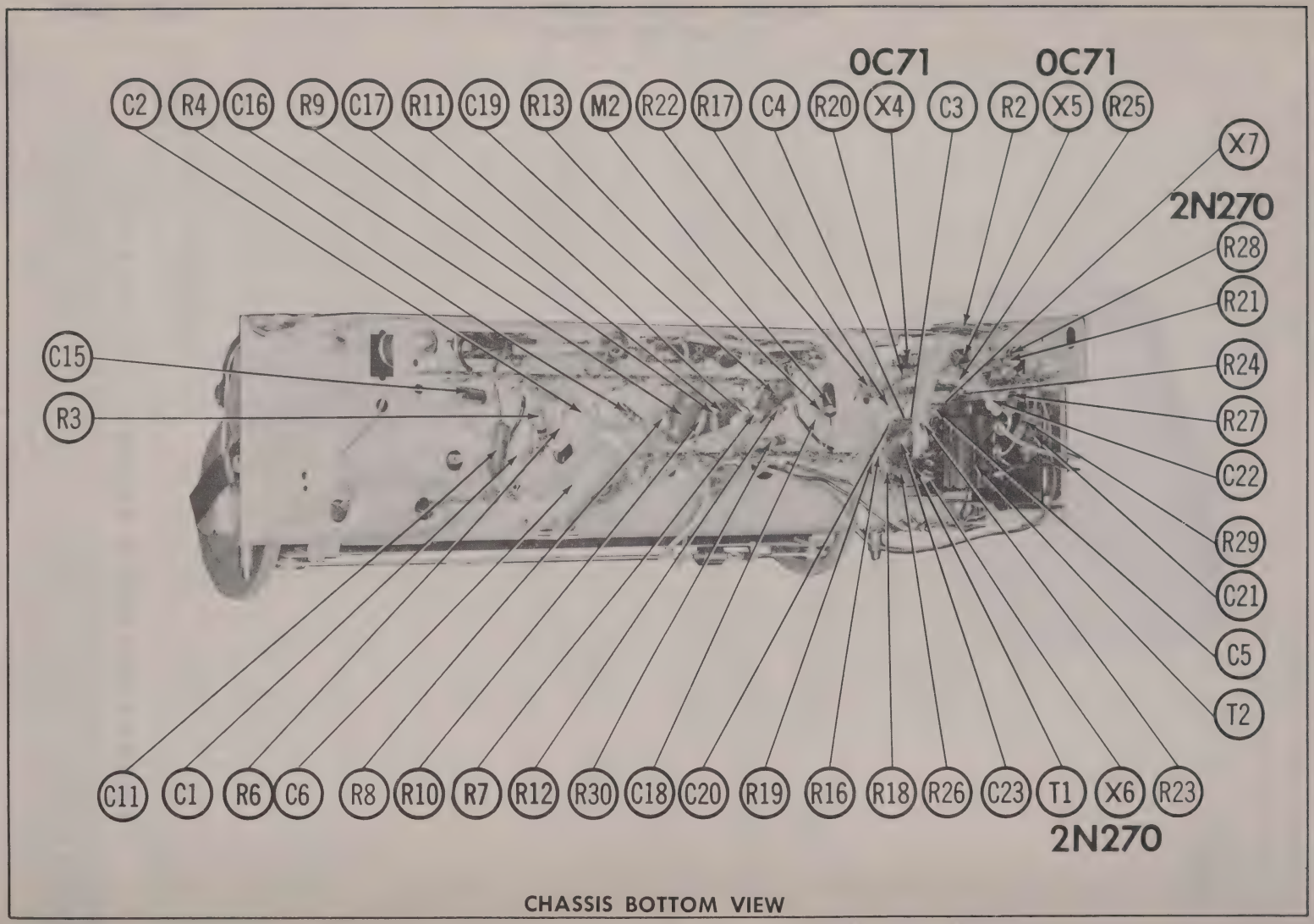
**HOWARD W. SAMS & CO., INC.** Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of KF162

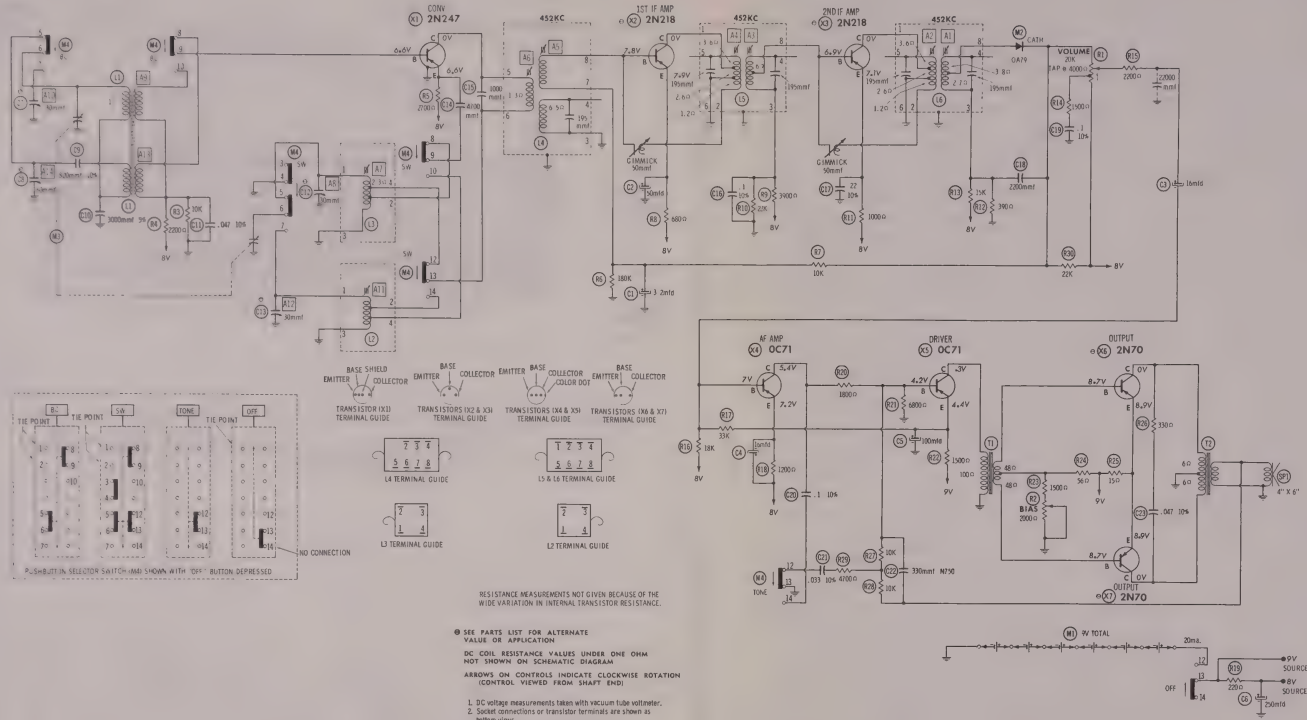
the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America



SET 518 FOLDER 6




CHASSIS BOTTOM VIEW




RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

❶ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections or transistor terminals are shown as bottom views.
3. Measured values are from socket pin or terminal to common ground.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
©Howard W. Sams & Co., Inc. 1961

**NORELCO MODELS L3X76T-01, -02, -04, -05, -07, -10**

# PARTS LIST AND DESCRIPTIONS

## TRANSISTORS

| ITEM No. | ORIG. TYPE | USE | REPLACEMENT DATA | | | NOTES |
|---|---|---|---|---|---|---|
| | | | RCA PART No. | RAYTHEON PART No. | SYLVANIA PART No. | |
| X1 | 2N247 | Converter | 2N247 | | 2N247 | PNP |
| X2 | 2N218 * | 1st IF Amplifier | 2N218 | 2N483 | 2N218 | PNP |
| X3 | 2N218 * | 2nd IF Amplifier | 2N218 | 2N483 | 2N218 | PNP |
| X4 | OC71 | AF Amplifier | 2N406 | 2N362 | | PNP |
| X5 | OC71 | Driver | 2N406 | 2N362 | | PNP |
| X6 | 2N270 † | Output | 2N270 | 2N360 | 2N270 | PNP ⎫ Matched |
| X7 | 2N270 † | Output | 2N270 | 2N360 | 2N270 | PNP ⎭ Pair |

* Alternate Types 2N410 or OC45 may be used in this application.
† Alternate Type 20C72 may be used in this application.

## ELECTROLYTIC CAPACITORS

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | CAP. | VOLT. | NORELCO PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | PYRAMID PART No. | SPRAGUE PART No. | |
| C1 | 3.2 | 70 | 909/E3.2 | PRS1400 | NLW3-100 | TT80X4 | TD-4-150 | TE-1403 | |
| C2 | 50 | 12.5 | 909/B50 | XPP-15050 | BBR50-25 | TT15X50 | ML50-15 | TE-1160 | |
| C3 | 16 | 12.5 | AC5703/16 | XPP-25015 | NLW15-25 | TT25X15 | ML15-25 | TE-1205 | |
| C4 | 16 | 12.5 | AC5703/16 | XPP-25015 | NLW15-25 | TT25X15 | ML15-25 | TE-1205 | |
| C5 | 100 | 12.5 | 909/B100 | PRS1270 | BBR100-25 | TT15X100 | ML100-25 | TE-1211 | |
| C6 | 250 | 12.5 | 910/B250 | PRS1210 | BR2502 | TC50025 | TD-250-15 | TE-1138 | |

## FIXED CAPACITORS

**Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
| C7 | 30 | Note 1 | | | | | | |
| C8 | 30 | Note 1 | | | | | | |
| C9 | 820 10% | | | | | VCM-20-821F | | |
| C10 | 3000 5% | | | | 1R5D3 | CM-20B-302J | MCE461 | MS-33 |
| C11 | .047 125V 10% | | V84C2S47-10% | | PM2S47 | 4DP-3-473 | | 2TM-S47 |
| C12 | 30 | Note 1 | | | | | | |
| C13 | 30 | Note 1 | | | | | | |
| C14 | 4700 | | SI 4700 | D6-472 | BYA10D47M | CCD-472 | B-247 | 5HK-D47 |
| C15 | 1000 | | SI 1000 | D6-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C16 | .1 125V 10% | | V84C2P1-10% | | PM2P1 | 2DP-3-104 | GEM-201 | 2TM-P10 |
| C17 | .22 125V 10% | | V84C2P22-10% | | PM2P22 | 2DP-4-224 | GEM-2022 | 2TM-P22 |
| C18 | 2200 | | SI 2200 | D6-222 | BYA10D22 | CCD-222 | B-222 | 5HK-D22 |
| C19 | .1 125V 10% | | V84C2P1-10% | | PM2P1 | 2DP-3-104 | GEM-201 | 2TM-P10 |
| C20 | .1 125V 10% | | V84C2P1-10% | | PM2P1 | 2DP-3-104 | GEM-201 | 2TM-P10 |
| C21 | .033 125V 10% | | V84C2S33-10% | | PM6S33 | 4DP-2-223 | | 6TM-S33 |
| C22 | 330 N750 | | N750-SI 330 | TCN-330 | C10TT33U | | CN7-333 | 10TCC-T33 |
| C23 | .047 125V 10% | | V84C2S47-10% | | PM2S47 | 4DP-3-473 | | 2TM-S47 |

Note 1. Nominal Value.

## CONTROLS

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| | RESISTANCE | WATTS | NORELCO PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | CTS-IRC PART No. | MALLORY PART No. | |
| R1 | 20K | ½ | B163965 | | | | | Volume |
| R2 | 4000Ω Tap 2000Ω | ½ | WE39597 | | | | | Bias |

## RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

| ITEM No. | RATING | REMARKS |
|---|---|---|
| R3 | 10K | |
| R4 | 2200Ω | |
| R5 | 2700Ω | |
| R6 | 180K | |
| R7 | 10K | |
| R8 | 680Ω | |
| R9 | 3900Ω | |
| R10 | 22K | |
| R11 | 1000Ω | |
| R12 | 390Ω | |

| ITEM No. | RATING | REMARKS |
|---|---|---|
| R13 | 15K | |
| R14 | 1500Ω | |
| R15 | 2200Ω | |
| R16 | 18K | |
| R17 | 33K | |
| R18 | 1200Ω | |
| R19 | 220Ω | |
| R20 | 1800Ω | |
| R21 | 6800Ω | |
| R22 | 1500Ω | |

| ITEM No. | RATING | REMARKS |
|---|---|---|
| R23 | 1500Ω | |
| R24 | 56Ω | |
| R25 | 15Ω | |
| R26 | 330Ω | |
| R27 | 10K | |
| R28 | 10K | |
| R29 | 4700Ω | |
| R30 | 22K | |

## COILS (RF-IF)

| ITEM No. | USE | REPLACEMENT DATA | | | | NOTES |
|---|---|---|---|---|---|---|
| | | NORELCO PART No. | Merit PART No. | Miller PART No. | Stancor PART No. | |
| L1A | SW Loopstick | A380395 | | | | |
| B | BC Loopstick | | | | | |
| L2 | SW Osc. Coil | A312882 | | | | |
| L3 | BC Osc. Coil | A312881 | | | | |
| L4 | 1st IF Trans. | A312884 | | | | |
| L5 | 2nd IF Trans. | A312842 | | | | |
| L6 | 3rd IF Trans. | A312841 | | | | |

## TRANSFORMER (DRIVER)

| ITEM No. | TURNS RATIO | | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. | NORELCO PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | |
| T1 | 1.3 | 1 | A316206 | | | | | |

## TRANSFORMER (AUDIO OUTPUT)

| ITEM No. | IMPEDANCE | | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. | NORELCO PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | |
| T2 | 36Ω CT | 3-4Ω | 918/08 | | TA-49① | | | ① Mounting Difference |

# PARTS LIST AND DESCRIPTIONS (Continued)

## SPEAKER

| ITEM No. | TYPE | | | REPLACEMENT DATA | | NOTES |
|---|---|---|---|---|---|---|
| | SIZE | FIELD | V. C. IMP. | NORELCO PART No. | QUAM PART No. | |
| SP1 | 4"x 6" | PM | 3-4Ω | AD3460Z | 46A15Z3 8 | |

## BATTERIES

| ITEM No. | VOLTAGE | NORELCO PART No. | REPLACEMENT DATA | | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | | | BURGESS | | EVEREADY | | MALLORY | | |
| | | | "A" | "B" | "A" | "B" | "A" | "B" | |
| M1 | 1.5V | | | 230 * | | A100 * | | M-13R * | * 6 Required |

## CRYSTAL DIODES

| ITEM No. | ORIG. TYPE | REPLACEMENT DATA | | | NOTES |
|---|---|---|---|---|---|
| | | NORELCO PART No. | RAYTHEON PART No. | SYLVANIA PART No. | |
| M2 | OA79 | | 1N295 | 1N295 | Detector (Pigtail) |

## MISCELLANEOUS

| ITEM No. | PART NAME | NORELCO PART No. | NOTES |
|---|---|---|---|
| M3 | Tuning Cap. | 4900204 | 2 Gang (Ant. 8-533mmf, Osc. 7-181mmf) |
| M4 | Switch | A379058 | Pushbutton Assembly, Includes Battery & Tone Switches |

## CABINETS & CABINET PARTS

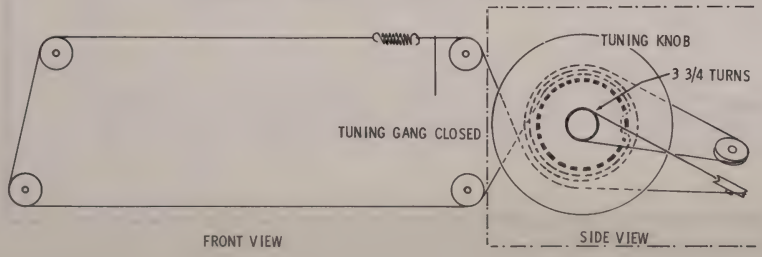
**(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)**

| NAME | PART NO. | DESCRIPTION |
|---|---|---|
| Knob | P407771/417 | Tuning, Models L3X76T-01, -02, -07 |
| Knob | A378253 | Tuning, Models L3X76T-04, -05, -10 |
| Knob | P407740/417 | Volume, Models L3X76T-01, -02, -07 |
| Knob | A377289 | Volume, Models L3X76T-04, -05, -10 |
| Dial | A392655 | Canada, Models L3X76T-01, -02, -10 |
| Dial | A392671 | Canada, Models L3X76T-04, -05 |
| Dial | A392613 | Overseas, Models L3X76T-01, -02, -10 |
| Pushbutton | A902349 | |
| Cabinet | A300517 | Models L3X76T-01, -02 |
| Cabinet | A300658 | Models L3X76T-04, -05, -10 |
| Cabinet | A300634 | Models L3X76T-07 |
| Handle | A375590 | |

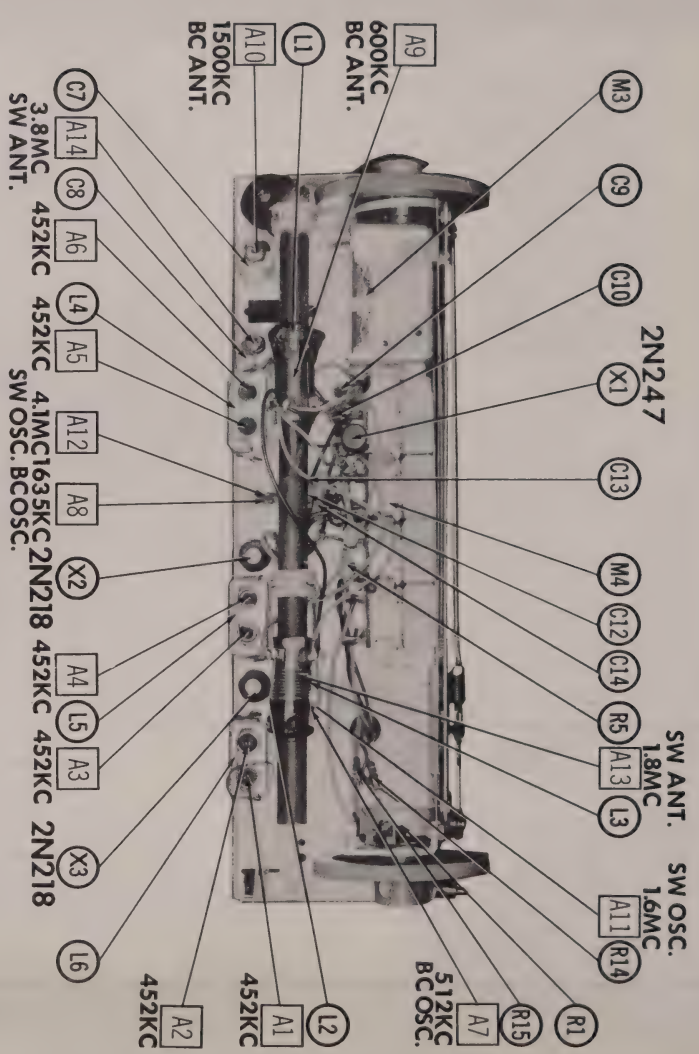
## WIRING DATA

General-use Unshielded Hook-up Wire .....Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

## TUNING DRIVE CORD STRINGING



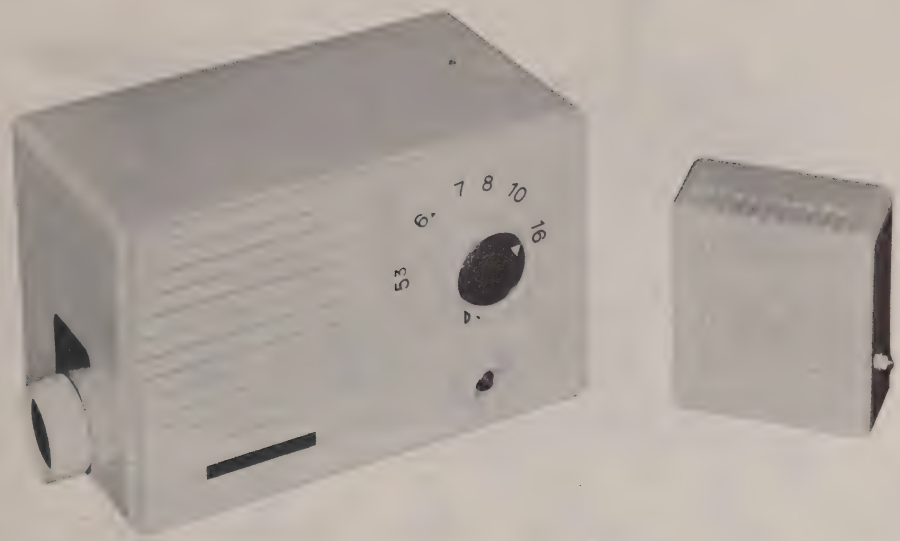

## CHASSIS—TOP VIEW



PHOTOFACT® Folder

**OLSON MODEL
RA-341**

OLSON MODEL
RA-341




OLSON MODEL
RA-341

| | |
|---|---|
| TRADE NAME | Olson Model RA-341 |
| SUPPLIER | Olson Radio Corp., 260 S. Forge Street, Akron 8, Ohio |
| TYPE SET | AC-DC Operated 5-Tube AM Receiver and Intercom |
| POWER SUPPLY | 110 - 120 Volts AC, 60 Cycles RATING 24 Watts, .25 Amp. @117 Volts AC |
| TUNING RANGE—BROADCAST | 540 — 1600KC |

# ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools: A1, A2, A3, A5, A6... GENERAL CEMENT #8721, 8722
WALSCO #2519
A4, A7..... GENERAL CEMENT #5004, 5008, 5009
WALSCO #2520

| | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | OUTPUT METER | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| 1. | Loop | 455KC (400~ Mod.) | Tuning gang fully open. | Across voice coil. | A1, A2, A3 | Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output. |
| 2. | " | 1600KC | 1600KC | " | A4 | " |
| 3. | " | 600KC | 600KC | " | A5, A6 | " |
| 4. | " | 1400KC | 1400KC Signal. | " | A7 | Adjust for maximum output while rocking gang. |

SET 518 FOLDER 7

**HOWARD W. SAMS & CO., INC.** Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of KG186

the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

# PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | USE | TYPE | ITEM No. | USE | TYPE |
|---|---|---|---|---|---|
| V1 | Converter | 12BE6 | V4 | Output | 50C5 |
| V2 | IF Amplifier | 12BA6 | V5 | Rectifier | 35W4 |
| V3 | Det. -AVC-AF Amp. | 12AV6 | | | |

## ELECTROLYTIC CAPACITORS

| ITEM No. | RATING CAP. | RATING VOLT. | REPLACEMENT DATA OLSON PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | PYRAMID PART No. | SPRAGUE PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| C1A | 40 | 150 | | AFH3-72 | B0120 | FP210 | TMT-3057 | TVL-2425 | |
| B | 20 | 150 | | | BBR5-50 | TC30 | | TVA-1203 | |
| C | 5 | 25 | | | | | | | |

## FIXED CAPACITORS

**Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|
| C2 | 70 5% | | | TCZ-68 | C10Q68C | | CNO-468 | 10TCCQ68 |
| C3 | 250 10% | | | TCZ-240 | L10T25 | CCD-251 | GP325 | 10TS-T25 |
| C4 | 10 10% | | NPO-SI 10 | TCZ-10 | L10Q1 | CCD-100 | GP410 | 10TCCQ10 |
| C5 | .02 400V | | P488N-02 | DD-203 | CUB4S2 | 4DP-2-203 | GEM-412 | 4TM-S20 |
| C6 | 250 10% | | | TCZ-240 | L10T25 | CCD-251 | GP325 | 10TS-T25 |
| C7 | .002 400V | | P488N-002 | D6-202 | CUB6D2 | 6DP-1-202 | GEM-622 | 6TM-D20 |
| C8 | 250 10% | | | TCZ-240 | L10T25 | CCD-251 | GP325 | 10TS-T25 |
| C9 | .002 400V | | P488N-002 | D6-202 | CUB6D2 | 6DP-1-202 | GEM-622 | 6TM-D20 |
| C10 | .005 400V | | P488N-005 | D6-502 | CUB6D5 | 6DP-1-502 | GEM-625 | 6TM-D50 |
| C11 | .02 400V | | P488N-02 | DD-203 | CUB4S2 | 4DP-2-203 | GEM-412 | 4TM-S20 |
| C12 | .05 400V | | P488N-05 | DD-503 | CUB4S5 | 4DP-3-503 | GEM-415 | 4TM-S50 |

## CONTROLS

| ITEM No. | RATING RESISTANCE | RATING WATTS | REPLACEMENT DATA OLSON PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | CTS-IRC PART No. | MALLORY PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| R1 | 1meg | ½ | | | | | | Volume & Switch |

## RESISTORS (IRC or EQUIVALENT)

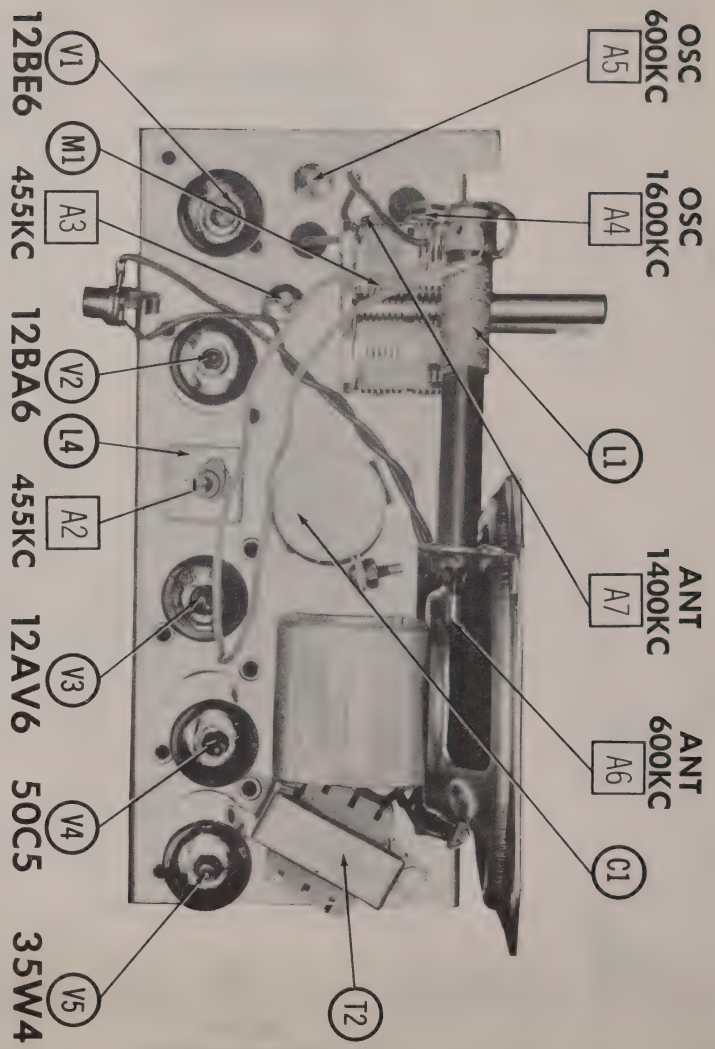
All wattages 1/2 watt, or less, unless otherwise listed.

| ITEM No. | RATING | REMARKS |
|---|---|---|
| R2 | 20K | |
| R3 | 100K | |
| R4 | 2meg | |

| ITEM No. | RATING | REMARKS |
|---|---|---|
| R5 | 3meg | |
| R6 | 250K | |
| R7 | 500K | |

| ITEM No. | RATING | REMARKS |
|---|---|---|
| R8 | 150Ω | |
| R9 | 3000Ω 2W | |

# CHASSIS—TOP VIEW



## PARTS LIST AND DESCRIPTIONS (Continued)

### COILS (RF-IF)

| ITEM No. | USE | REPLACEMENT DATA | | | | NOTES |
|---|---|---|---|---|---|---|
| | | OLSON PART No. | Merit PART No. | Miller PART No. | Stancor PART No. | |
| L1 | Ant. Coil | | | 6300 | | |
| L2 | Osc. Coil | | BC-393 | 70-OSC | RTC-8647 | |
| L3 | 1st IF Trans. | | | | | |
| L4 | 2nd IF Trans. | | BC-349 | 10-C2 | RTC-8674 | |

### TRANSFORMER (INPUT)

| ITEM No. | TURNS RATIO | | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. | OLSON PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | |
| T1 | 22 | 1 | | | | | | |

### TRANSFORMER (AUDIO OUTPUT)

| ITEM No. | IMPEDANCE | | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. | OLSON PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | |
| T2 | 2500Ω | 6-8Ω | | | | 26858 | | |

### SPEAKER

| ITEM No. | TYPE | | | REPLACEMENT DATA | | NOTES |
|---|---|---|---|---|---|---|
| | SIZE | FIELD | V. C. IMP. | OLSON PART No. | QUAM PART No. | |
| SP1 | 3½" | PM | 6-8Ω | | 3A07Z7.8 | |
| SP2 | 2½" | PM | 6-8Ω | | 25A07Z8 | |

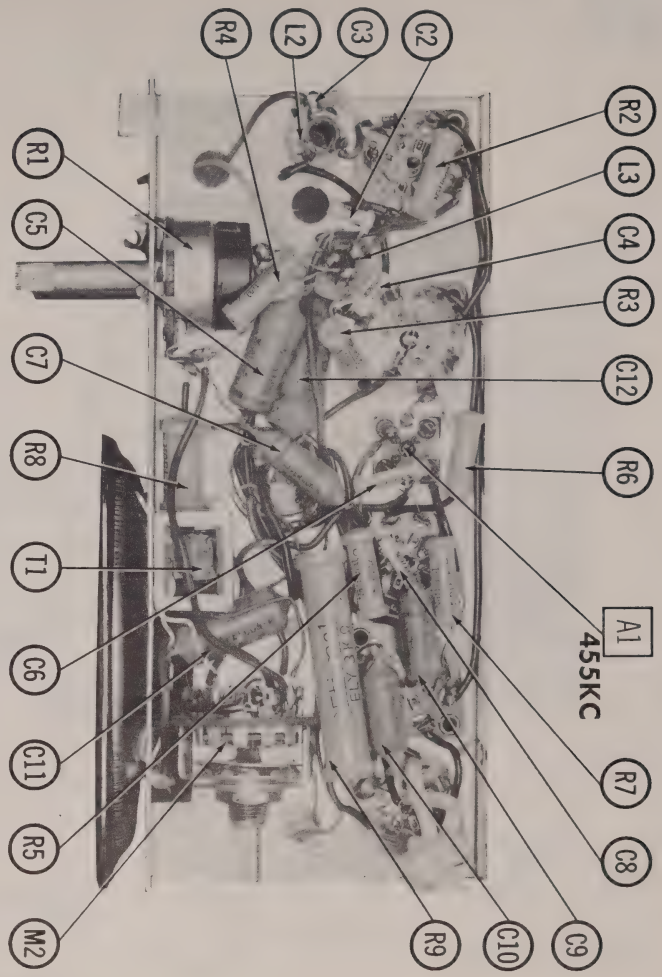
### MISCELLANEOUS

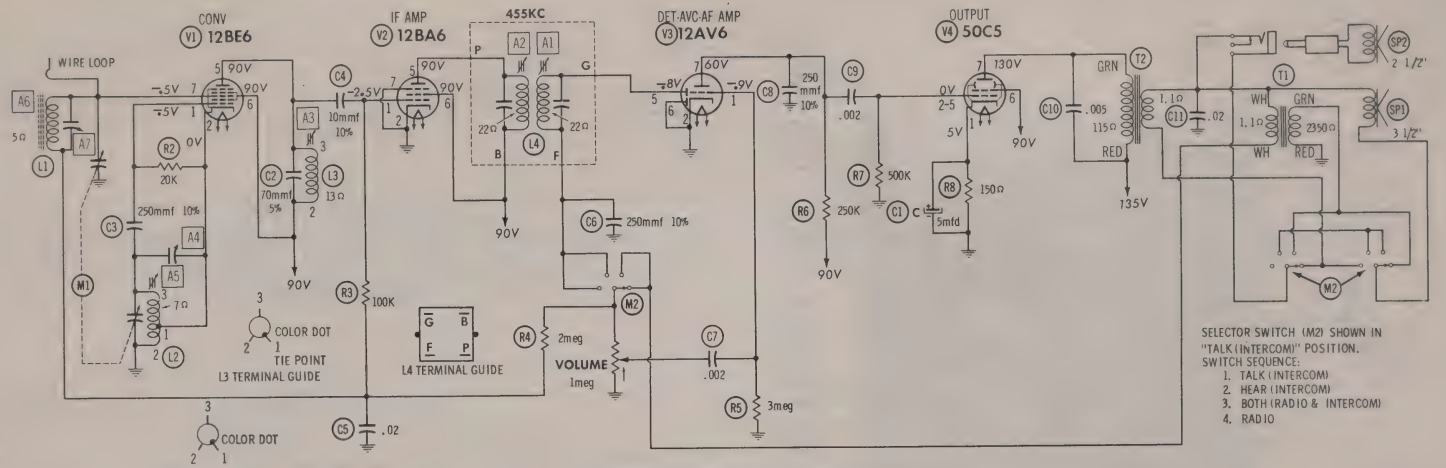
| ITEM No. | PART NAME | OLSON PART No. | NOTES |
|---|---|---|---|
| M1 | Tuning Cap | | 2 Gang (Ant. 6-215mmf, Osc. 6-95mmf) |
| M2 | Switch | | Selector (Wafer Type) |

### WIRING DATA

| | |
|---|---|
| General-use Unshielded Hook-up Wire | Use BELDEN No. 8530 (Solid) Available in Ten Colors<br>8524 (Stranded) Available in Ten Colors |
| Power Cord | Use BELDEN No. 1765-B (6 Ft. Length)<br>1725-K (7½ Ft. Length) |

## CHASSIS—BOTTOM VIEW






**DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM**

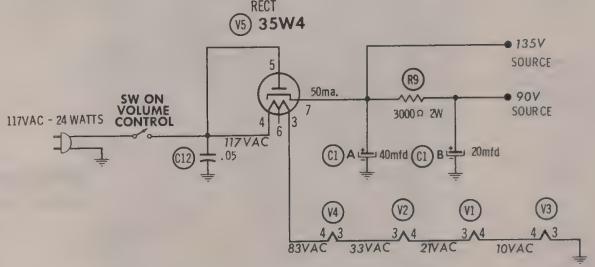
**ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)**

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

RESISTANCE READINGS

| ITEM | TUBE | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 |
|---|---|---|---|---|---|---|---|---|
| V1 | 12BE6 | 20K | 0Ω | 30Ω | 15Ω | †3000Ω | †3000Ω | 3meg |
| V2 | 12BA6 | 3meg | 0Ω | 45Ω | 30Ω | †3000Ω | †3000Ω | 0Ω |
| V3 | 12AV6 | 3meg | 0Ω | 0Ω | 15Ω | 1meg | 0Ω | †250K |
| V4 | 50C5 | 150Ω | 500K | 45Ω | 100Ω | NC | †3000Ω | †115Ω |
| V5 | 35W4 | TP | NC | 100Ω | 140Ω | 140Ω | NC | ¶ |

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 7 OF V5. NC NO CONNECTION TP TIE POINT




1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
©Howard W. Sams & Co., Inc. 1961

**OLSON MODEL RA-341**

PHOTOFACT® Folder

**OLYMPIC CONTINENTAL
MODEL GBS386**

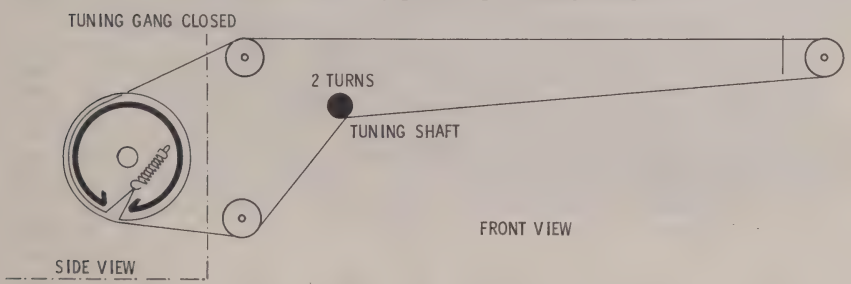
OLYMPIC CONTINENTAL
MODEL GBS386

OLYMPIC CONTINENTAL
MODEL GBS386

| | |
|---|---|
| TRADE NAME | Olympic Continental Model GBS386 |
| MANUFACTURER | Olympic, A Div. of The Siegler Corp., 34-01 38th Ave., Long Island City 1, N. Y. |
| TYPE SET | AC Operated 9 Tube FM-BC-SW Receiver With Stereo Amplifier And 4 Speed Automatic Record Changer |
| POWER SUPPLY | 105 — 120 Volts AC, 60 Cycles RATING 65 Watts, .6 Amp. @117 Volts AC (Less Motor) |
| TUNING RANGES — BROADCAST | 550 - 1600KC FREQ. MOD. 88 - 108MC SHORT WAVE 6 - 18MC |

FOR SERVICE INFORMATION ON RECORD CHANGER PART #RX26202-2 — SEE MONARCH UA12 — PHOTOFACT SET 465 FOLDER 6

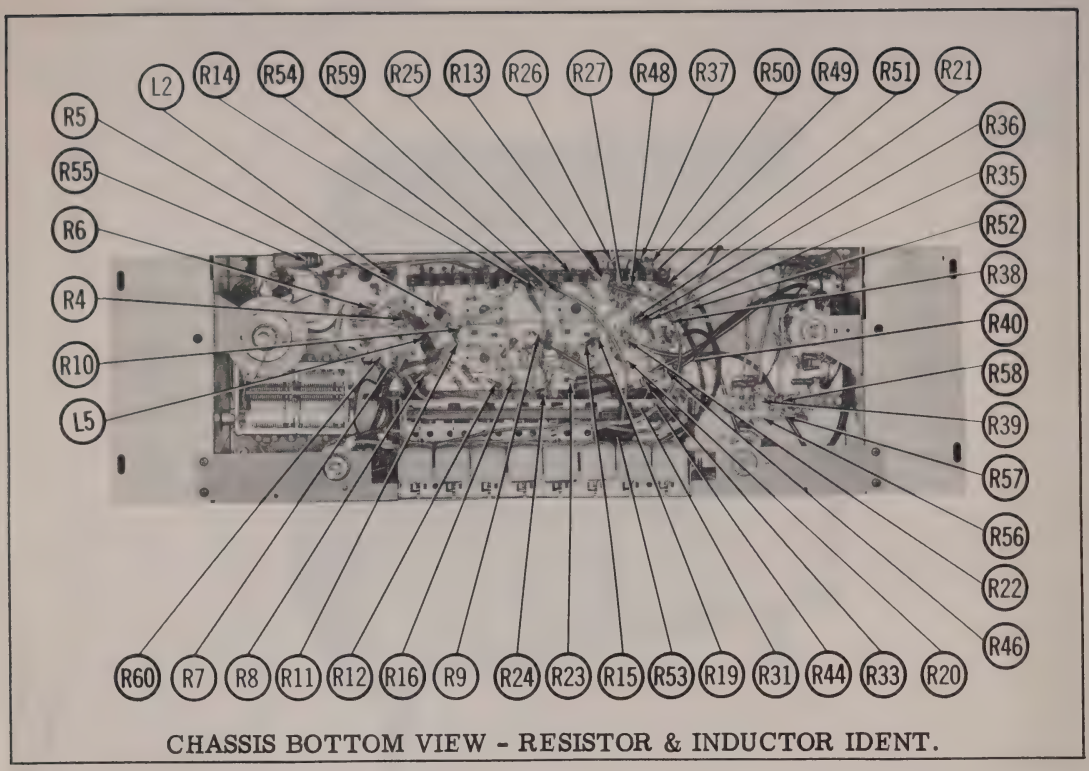
## DIAL CORD STRINGING



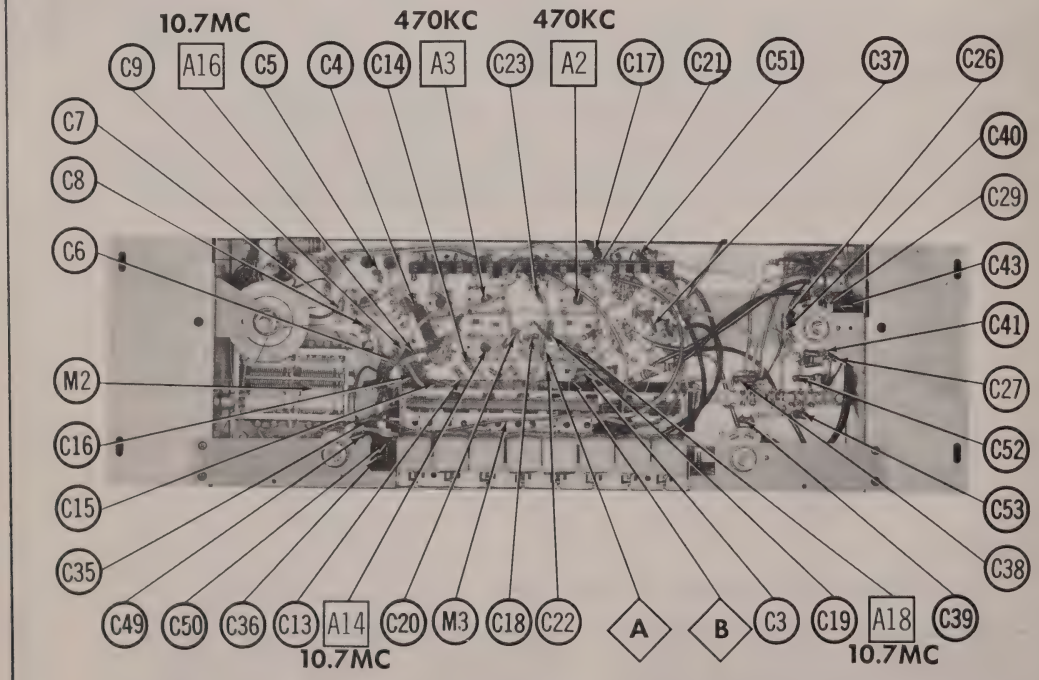

**HOWARD W. SAMS & CO., INC.** Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

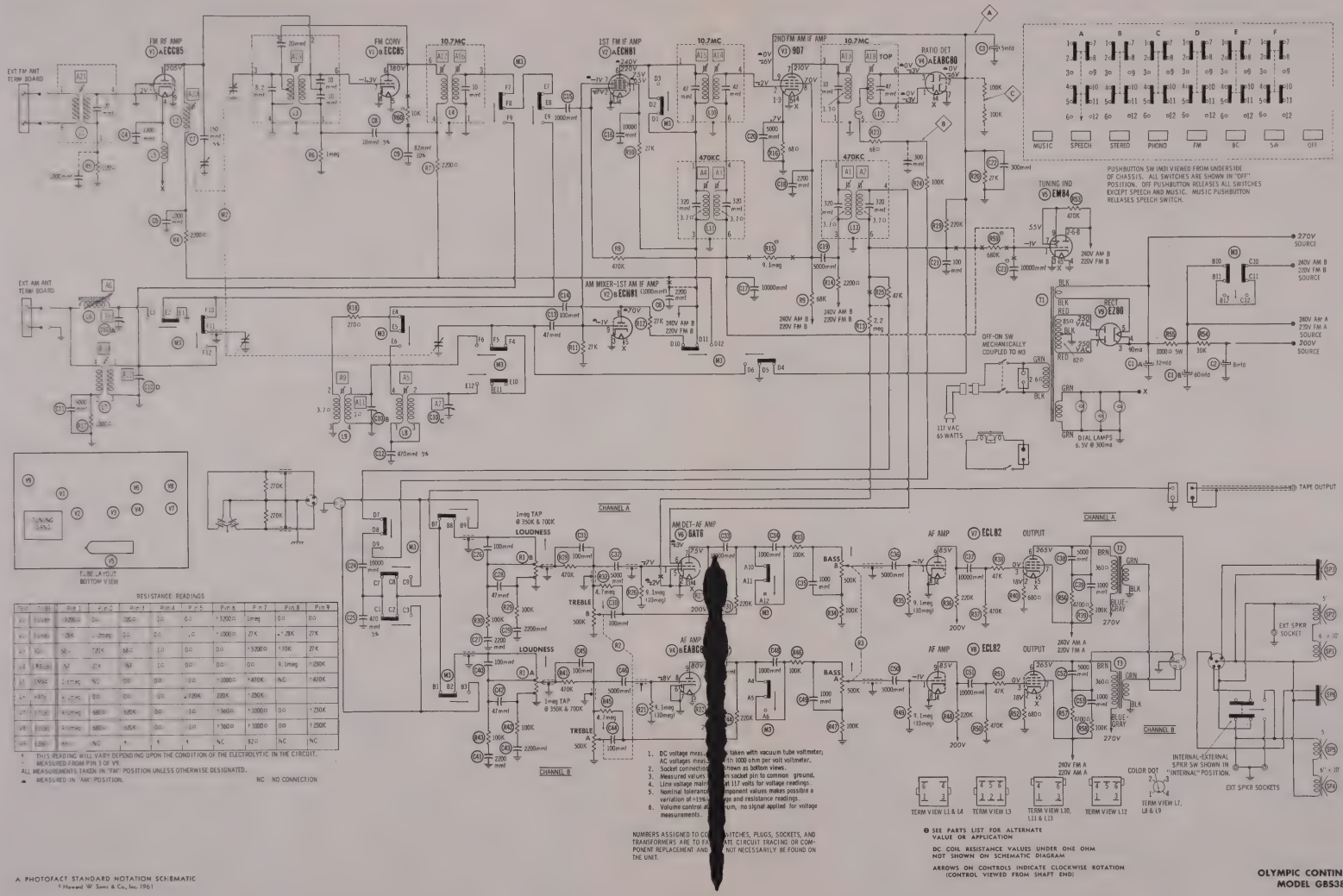
KN174




CHASSIS BOTTOM VIEW - RESISTOR & INDUCTOR IDENT.




CHASSIS BOTTOM VIEW - ALIGNMENT, CAPACITOR & MISC. IDENT.




RESISTANCE READINGS

| Socket | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| V1 | 6AU6 | 470Ω | 0Ω | 220Ω | 0Ω | 0Ω | 1meg | 0Ω | 0Ω | |
| V2 | 6AU6 | 68K | 1.2meg | 0Ω | 0Ω | 0Ω | 1000Ω | 27K | 27K | |
| V3 | 9D7 | 68K | 470K | 68Ω | 0Ω | 0Ω | 0Ω | 3200Ω | 470K | 27K |
| V4 | EABC80 | NC | 22K | NC | 0Ω | 0Ω | 0Ω | 0Ω | 9.1meg | 330K |
| V5 | EM84 | 2.2meg | NC | 0Ω | 0Ω | 0Ω | 0Ω | 1000Ω | 400K | NC |
| V6 | 6AT6 | 2.2meg | 0Ω | 0Ω | 0Ω | 0Ω | 220K | 220K | 250K | |
| V7 | ECL82 | 470meg | 680Ω | 500K | 0Ω | 0Ω | 360Ω | 1000Ω | 0Ω | 250K |
| V8 | ECL82 | 470meg | 680Ω | 500K | 0Ω | 0Ω | 360Ω | 1000Ω | 0Ω | 250K |
| V9 | EZ80 | 0Ω | 0Ω | 0Ω | 0Ω | 0Ω | 0Ω | 0Ω | 0Ω | 0Ω |
| | | 0Ω | 0Ω | 0Ω | 0Ω | 0Ω | 0Ω | 0Ω | 0Ω | 0Ω |
| | | 0Ω | 0Ω | 0Ω | 0Ω | 0Ω | 0Ω | 0Ω | 0Ω | 0Ω |
| | | 0Ω | 0Ω | 0Ω | 0Ω | 0Ω | 0Ω | 0Ω | 0Ω | 0Ω |
| | | 0Ω | 0Ω | 0Ω | 0Ω | 0Ω | 0Ω | 0Ω | 0Ω | 0Ω |

* THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
- MEASURED FROM PIN 3 OF V9.
ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED.
▲ MEASURED IN "AM" POSITION.
NC NO CONNECTION

1. DC voltage measu... taken with vacuum tube voltmeter;
AC voltages measu... with 1000 ohm per volt voltmeter.
2. Socket connections ... shown as bottom views.
3. Measured values ... on socket pin to common ground.
4. Line voltage maint... at 117 volts for voltage readings.
5. Nominal tolerance ... component values makes possible a variation of ±10%... age and resistance readings.
6. Volume control at ... um, no signal applied for voltage measurements.

NUMBERS ASSIGNED TO CO... SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FA... ATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND ... NOT NECESSARILY BE FOUND ON THE UNIT.

❶ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

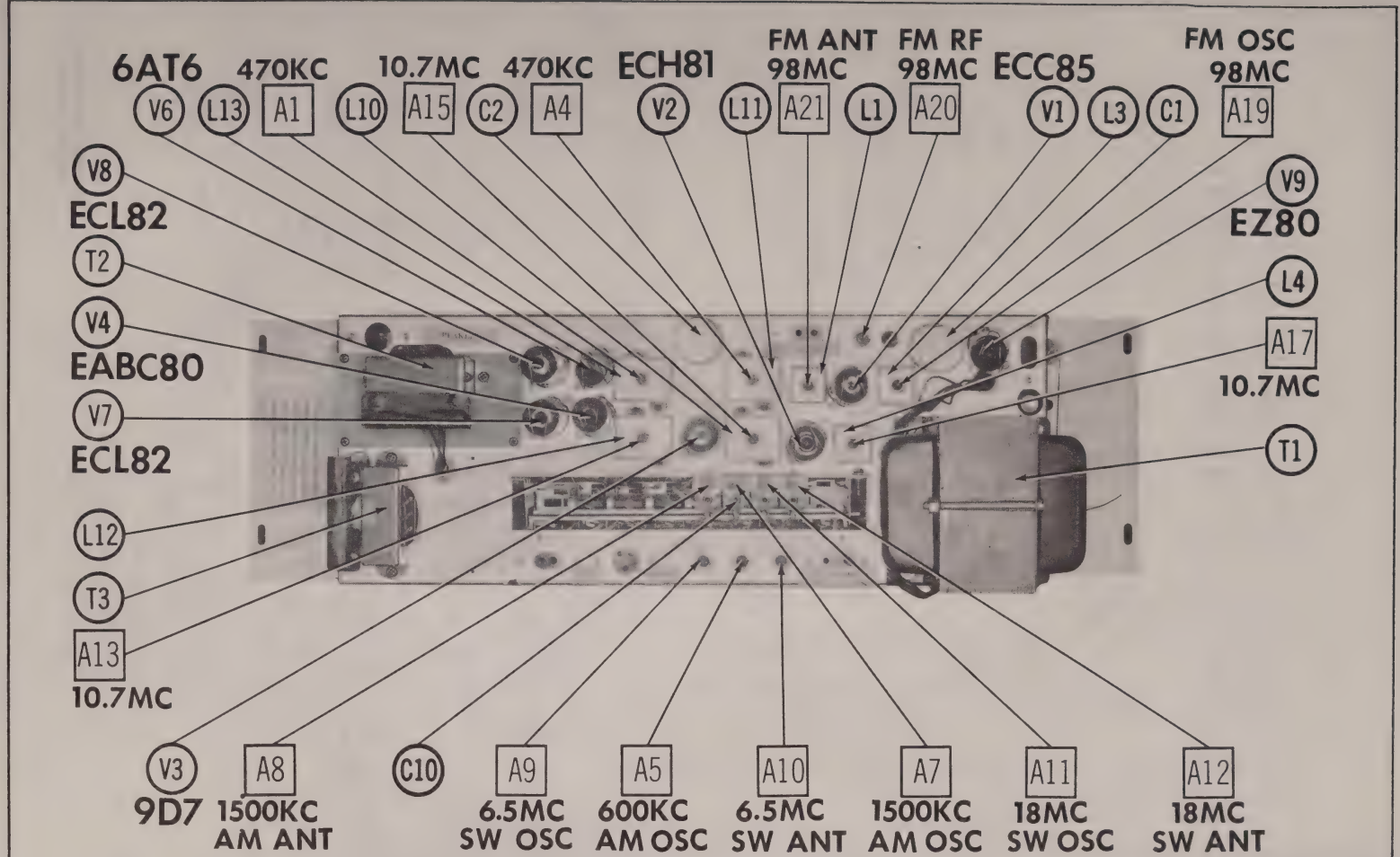
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

A PHOTOFACT STANDARD NOTATION SCHEMATIC

© Howard W. Sams & Co., Inc. 1961

**OLYMPIC CONTINENTAL MODEL GB5386**




CHASSIS - TOP VIEW

OLYMPIC CONTINENTAL
MODEL GBS386

# ALIGNMENT INSTRUCTIONS

**ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT**

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools:

A1 thru A5, A9, A10, A19, A20. . GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8729, 8987, 8988, 8989
WALSCO #2515, 2531, 2532

A7, A8, A11, A12..... GENERAL CEMENT #5000, 5003, 8276, 8290
WALSCO #2512, 2515, 2522, 2523, 2525, 2537

A13 thru A18, A21..... GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545

AM ALIGNMENT— SELECTOR AS INDICATED

| | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | OUTPUT METER | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| 1. | High side thru .1mfd to pin 2 (grid) of AM Converter. Low side to chassis | 470KC (400∿ Mod.) | (BC) 600KC | Across voice coil. | A1, A2, A3, A4 | Adjust for maximum output. |
| 2. | Loop | 600KC | (BC) 600KC | " | A5, A6 | Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output. |
| 3. | " | 1500KC | (BC) 1500KC | " | A7, A8 | " |
| 4. | Across AM Antenna terminals with 400Ω in series with high side. | 6.5MC | (SW) 6.5MC | " | A9, A10 | Adjust for maximum output. |
| 5. | " | 18MC | (SW) 18MC | " | A11, A12 | " |

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM—SELECTOR IN FM POSITION

Connect two matched 100K (± 1%) resistors in series from point Ⓐ to chassis. The junction of these two resistors is alignment point Ⓒ as shown on the schematic.

| | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | CONNECT VTVM | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| 6. | Two turn loop around FM RF Amp. Low side to chassis. | 10.7MC (Unmod.) | (FM) Point of non-interference. | DC probe to point Ⓐ. Common to chassis. | A13, A14, A15, A16, A17 | Adjust for maximum deflection. |
| 7. | " | " | " | DC probe to point Ⓑ. Common to chassis. | A18 | Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting. |

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE—SELECTOR IN FM POSITION

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection

| | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | CONNECT SCOPE | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| 6. | Two turns around FM RF Amp. Low side to chassis. | 10.7MC (450KC Swp) | (FM) Point of non-interference. | Vert. amp. to point Ⓐ. Low side to chassis. | A13, A14, A15, A16, A17 | Disconnect stabilizing capacitor C3. Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown. Reconnect C3. |
| 7. | " | " | " | Vert. amp. to point Ⓑ. Low side to chassis. | A18 | Adjust to place marker at the center of crossover lines similar to Fig. 2. SLIGHTLY retouch A13 for maximum amplitude and straightness of cross-over lines. |

FM RF ALIGNMENT—SELECTOR IN FM POSITION

| | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | CONNECT VTVM | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| 8. | Across FM antenna terminals with 300Ω in high side. | 98MC (Unmod.) | (FM) 98MC | DC probe to point Ⓐ. Common to chassis. | A19, A20, A21 | Adjust for maximum output. |

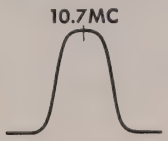



FIG. 1

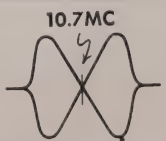



FIG. 2

# PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | USE | TYPE | ITEM No. | USE | TYPE |
|---|---|---|---|---|---|
| V1 | FM RF Amp. -FM Conv. | ECC85 | V6 | AM Det. -Channel A AF Amp. | 6AT6 |
| V2 | FM IF Amp. -AM Mixer-AM IF Amp. | ECH81 | V7 | Channel A AF Amp. -Channel A Output | ECL82 |
| V3 | 2nd FM-AM IF Amp. | 9D7 | V8 | Channel B AF Amp. -Channel B Output | ECL82 |
| V4 | Ratio Detector-Channel B AF Amp. | EABC80 | V9 | Rectifier | EZ80 |
| V5 | Tuning Indicator | EM84 | | | |

## ELECTROLYTIC CAPACITORS

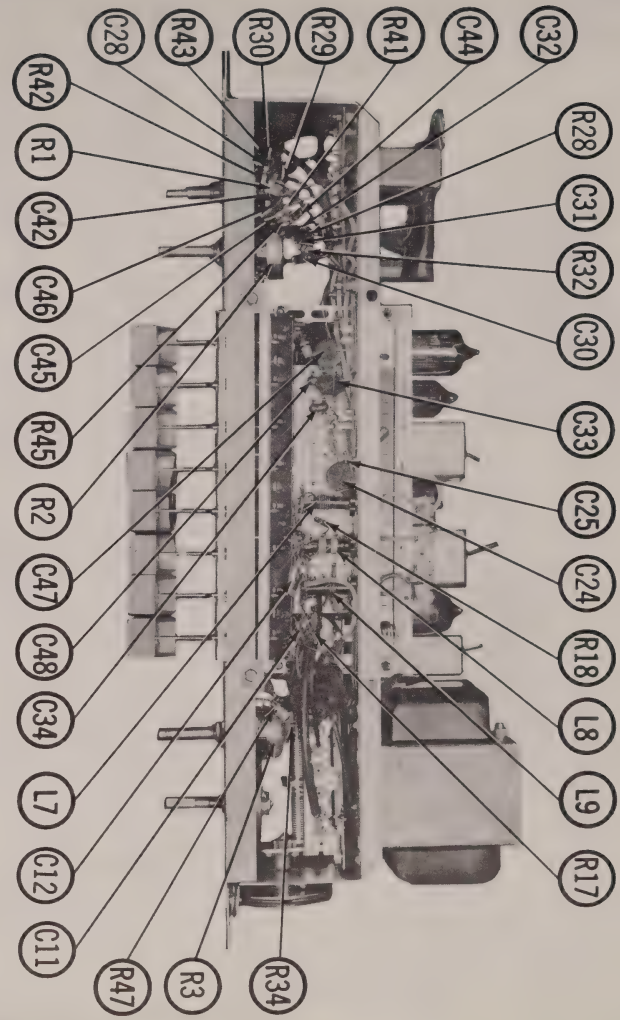
| ITEM No. | RATING CAP. | RATING VOLT. | REPLACEMENT DATA OLYMPIC PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | PYRAMID PART No. | SPRAGUE PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| C1A | 32 | 300 | COE30445 | AFH1-39 | XB0254 | WP227.35 | TMS-1510 | TVL-2574 | |
| B | 60 | 300 | | PRS1690 | | | TD-60-350 | | |
| C2 | 8 | 275 | COE30444 | AFH1-32 | A0360 | FP231 | TMS-1500 | TVL-1605 | |
| C3 | 5 | 50 | COE25270 | PRS1310 | BBR5-50 | TC30 | TD-5-50 | TVA-1303 | |

## FIXED CAPACITORS

**Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|
| C4 | 1000 | | SI 1000 | D6-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C5 | 1000 | | SI 1000 | D6-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C6 | 2200 | (1000) † | SI 2200 | D6-222 | BYA10D22 | CCD-222 | B-222 | 5HK-D22 |
| C7 | 150 5% | | | TCZ-150 | 22R5T15 | CM-19B-151J | CNO-315 | 10TCC-T15 |
| C8 | 10 5% | | NPO-SI 10 | TCZ-10 | C10Q1C | CCTO-100 | CNO-410 | 10TCC-Q10 |
| C9 | 82 10% | | | D6-820 | C10Q82C | CCTO-820 | GP482 | 10TS-Q82 |
| C10A | | | | | | | | |
| B | | #CVE30443 | | | | | | |
| C | | | | | | | | |
| D | | | | | | | | |
| C11 | 5000 | | SI 5000 | D6-502 | BYA10D5 | CCD-502 | B-250 | 5HK-D50 |
| C12 | 470 5% | | | | 5R5T47 | CM-19B-471J | MCJ244 | MS-347 |
| C13 | 47 | | SI 47 | D6-470 | L10Q47 | CCD-470 | GP447 | 10TS-Q47 |
| C14 | 100 | | SI 100 | D6-101 | L10T1 | CCD-101 | GP310 | 10TS-T10 |
| C15 | 1000 | | SI 1000 | D6-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C16 | 10000 | | BPD-01 | LD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C17 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C18 | 2200 | | SI 2200 | D6-222 | BYA10D22 | CCD-222 | B-222 | 5HK-D22 |
| C19 | 5000 | | SI 5000 | D6-502 | BYA10D5 | CCD-502 | B-250 | 5HK-D50 |
| C20 | 5000 | | SI 5000 | D6-502 | BYA10D5 | CCD-502 | B-250 | 5HK-D50 |
| C21 | 100 | | SI 100 | D6-101 | L10T1 | CCD-101 | GP310 | 10TS-T10 |
| C22 | 300 | | SI 300 | D6-301 | L10T3 | CCD-301 | GP330 | 10TS-T30 |
| C23 | 10000 | Note 1 | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C24 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C25 | 470 5% | | | | 5R5T47 | CM-19B-471J | MCJ244 | MS-347 |
| C26 | 100 | | SI 100 | D6-101 | L10T1 | CCD-101 | GP310 | 10TS-T10 |
| C27 | 2200 | | SI 2200 | D6-222 | BYA10D22 | CCD-222 | B-222 | 5HK-D22 |
| C28 | 47 | | SI 47 | D6-470 | L10Q47 | CCD-470 | GP447 | 10TS-Q47 |
| C29 | 2200 | | SI 2200 | D6-222 | BYA10D22 | CCD-222 | B-222 | 5HK-D22 |
| C30 | 100 | | SI 100 | D6-101 | L10T1 | CCD-101 | GP310 | 10TS-T10 |
| C31 | 100 | | SI 100 | D6-101 | L10T1 | CCD-101 | GP310 | 10TS-T10 |
| C32 | 5000 | | SI 5000 | D6-502 | BYA10D5 | CCD-502 | B-250 | 5HK-D50 |
| C33 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C34 | 1000 | | SI 1000 | D6-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C35 | 1000 | | SI 1000 | D6-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C36 | 5000 | | SI 5000 | D6-502 | BYA10D5 | CCD-502 | B-250 | 5HK-D50 |
| C37 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C38 | 5000 | | SI 5000 | D6-502 | BYA10D5 | CCD-502 | B-250 | 5HK-D5 |
| C39 | 1000 | | SI 1000 | D6-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C40 | 100 | | SI 100 | D6-101 | L10T1 | CCD-101 | GP310 | 10TS-T10 |
| C41 | 2200 | | SI 2200 | D6-222 | BYA10D22 | CCD-222 | B-222 | 5HK-D22 |
| C42 | 47 | | SI 47 | D6-470 | L10Q47 | CCD-470 | GP447 | 10TS-Q47 |
| C43 | 2200 | | SI 2200 | D6-222 | BYA10D22 | CCD-222 | B-222 | 5HK-D22 |
| C44 | 100 | | SI 100 | D6-101 | L10T1 | CCD-101 | GP310 | 10TS-T10 |
| C45 | 100 | | SI 100 | D6-101 | L10T1 | CCD-101 | GP310 | 10TS-T10 |

## CHASSIS—SIDE VIEW



# PARTS LIST AND DESCRIPTIONS (Continued)

## FIXED CAPACITORS (cont)

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
| C46 | 5000 | | SI 5000 | D6-502 | BYA10D5 | CCD-502 | B-250 | 5HK-D50 |
| C47 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C48 | 1000 | | SI 1000 | D6-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C49 | 1000 | | SI 1000 | D6-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C50 | 5000 | | SI 5000 | D6-502 | BYA10D5 | CCD-502 | B-250 | 5HK-D50 |
| C51 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C52 | 5000 | | SI 5000 | D6-502 | BYA10D5 | CCD-502 | B-250 | 5HK-D50 |
| C53 | 1000 | | SI 1000 | D6-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |

Note 1. Not used in some versions.
† Alternate Value.
# Olympic Part Number.

## CONTROLS

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| | RESISTANCE | WATTS | OLYMPIC PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | CTS-IRC PART No. | MALLORY PART No. | |
| R1A | 1meg* | | PTE30440 | | | | | Loudness, Channel B |
| B | 1meg* | | | | | | | Loudness, Channel A |
| R2A | 500K | | PTE30452 | B-58 | AD47-500K-Z | | FA55A | Treble, Channel B |
| B | 500K | | | SR-58 | Not Req. | | RU55A | Treble, Channel A |
| C | Shaft | | | Not Req. | RS-2 | | CS3500 | |
| R3A | 500K | | PTE30452 | B-58 | AD47-500K-Z | | FA55A | Bass, Channel B |
| B | 500K | | | SR-58 | Not Req. | | RU55A | Bass, Channel A |
| C | Shaft | | | Not Req. | RS-2 | | CS3500 | |

* Taps @ 350K & 700K.

## RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

| ITEM No. | RATING | REMARKS |
|---|---|---|
| R4 | 2200Ω | |
| R5 | 220Ω | |
| R6 | 1meg | |
| R7 | 2200Ω | |
| R8 | 470K | |
| R9 | 68K | |
| R10 | 27K | |
| R11 | 27K | |
| R12 | 27K | |
| R13 | 2.2meg | |
| R14 | 2200Ω | |
| R15 | 9.1meg | Note 1 |
| R16 | 68Ω | |
| R17 | 1000Ω | |
| R18 | 270Ω | |
| R19 | 220K | |
| R20 | 27K | |
| R21 | 9.1meg | (10meg) * |
| R22 | 220K | |

| ITEM No. | RATING | REMARKS |
|---|---|---|
| R23 | 68Ω | |
| R24 | 100K | |
| R25 | 47K | |
| R26 | 9.1meg | (10meg) * |
| R27 | 220K | |
| R28 | 470K | |
| R29 | 100K | |
| R30 | 100K | |
| R31 | 220K | |
| R32 | 4.7meg | |
| R33 | 100K | |
| R34 | 100K | |
| R35 | 9.1meg | (10meg) * |
| R36 | 220K | |
| R37 | 470K | |
| R38 | 47K | |
| R39 | 100K | |
| R40 | 680Ω | |
| R41 | 470K | |

| ITEM No. | RATING | REMARKS |
|---|---|---|
| R42 | 100K | |
| R43 | 100K | |
| R44 | 220K | |
| R45 | 4.7meg | |
| R46 | 100K | |
| R47 | 100K | |
| R48 | 220K | |
| R49 | 9.1meg | (10meg) * |
| R50 | 470K | |
| R51 | 47K | |
| R52 | 680Ω | |
| R53 | 470K | |
| R54 | 10K | |
| R55 | 1000Ω 5W | |
| R56 | 4700Ω | |
| R57 | 4700Ω | |
| R58 | 100K | |
| R59 | 680K | Note 1 |
| R60 | 10K | Note 1 |

Note 1. Not used in some versions.
* Alternate Value.

## COILS (RF-IF)

| ITEM No. | USE | REPLACEMENT DATA | | | | NOTES |
|---|---|---|---|---|---|---|
| | | OLYMPIC PART No. | Merit PART No. | Miller PART No. | Stancor PART No. | |
| L1 | FM Ant. Trans. | TRE30416 | | | | |
| L2 | FM RF Coil | CLE30052 | | | | |
| L3 | FM Osc. Coil | CLE30417 | | | | |
| L4 | 1st FM IF Trans. | TRE25241 | | | | |
| L5 | Fil. Choke | TRE25239 | BC-562 | 4604 | RTC-8516 | 1.4uh |
| L6 | Loopstick | LPE30418 | | | | |
| L7 | SW Ant. Trans. | CLE25252 | | | | |
| L8 | BC Osc. Coil | CLE25255 | | | | |
| L9 | SW Osc. Coil | CLE25251 | | | | |
| L10 | 2nd FM IF Trans. | TRE25237 | | | | |
| L11 | 1st AM IF Trans. | TRE30419 | | | | |
| L12 | Ratio Det. | TRE25238 | | | | |
| L13 | 2nd AM IF Trans. | TRE25240 | | | | |

## TRANSFORMER (POWER)

| ITEM No. | RATING | | | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. 1 | SEC. 2 | OLYMPIC PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | |
| T1 | 117V @ .6A | 500VCT @ .090A | 6.3V @ .6A | TRE30466 | | | | | |
| | SEC. 3 | SEC. 4 | SEC. 5 | | | | | | |
| | 6.3V @ 3.4A | | | | | | | | |

## TRANSFORMER (AUDIO OUTPUT)

| ITEM No. | IMPEDANCE | | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. | OLYMPIC PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | |
| T2 | 5600Ω | 3-4Ω | TRE30420 | A-3019① | A-8092① | 26S49① | S-5Z① | ① Drill New Mounting Holes. |
| T3 | 5600Ω | 3-4Ω | TRE30420 | A-3019① | A-8092① | 26S49① | S-5Z① | |

## SPEAKER

| ITEM No. | TYPE | | | REPLACEMENT DATA | | NOTES |
|---|---|---|---|---|---|---|
| | SIZE | FIELD | V. C. IMP. | OLYMPIC PART No. | QUAM PART No. | |
| SP1 | 6"x 10" | PM | 3-4Ω | SKE25266 | | |
| SP2 | 5" | PM | 3-4Ω | SKE30447 | 5A15R | |
| SP3 | ELECTROSTATIC | | | SKE30433 | | |
| SP4 | 6"x 10" | PM | 3-4Ω | SKE25266 | | |
| SP5 | 5" | PM | 3-4Ω | SKE30447 | 5A15R | |
| SP6 | ELECTROSTATIC | | | SKE30433 | | |

## PHONO CARTRIDGE & NEEDLES

*NEEDLE LISTINGS SHOWN ARE FOR RESPECTIVE REPLACEMENT CARTRIDGES ONLY.

| ITEM No. | REPLACEMENT DATA | | | | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | OLYMPIC PART No. | | ASTATIC PART No. | | ELECTRO-VOICE PART No. | | SONOTONE PART No. | | |
| | CARTRIDGE | NEEDLE* | CARTRIDGE | NEEDLE* | CARTRIDGE | NEEDLE* | CARTRIDGE | NEEDLE* | |
| M1 | | | 76-TS-TB | Not Req. | 26S | S1-1 * S3-3 * | 8TA4-S | N-8TA-S * | |

## MISCELLANEOUS

| ITEM No. | PART NAME | OLYMPIC PART No. | NOTES |
|---|---|---|---|
| M2 | Tuning Cap. | CVE30443 | FM-AM, 4 Gang (AM Sections: Ant. 10-550mmf, Osc. 12-470mmf) |
| M3 | Switch | SWE30451 | Function Selector (Pushbutton Type) |

## CABINETS & CABINET PARTS

**(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)**

| NAME | PART NO. | DESCRIPTION |
|---|---|---|
| Dial | DLE30450 | Scale, Glass |
| Pointer | POE30439 | Dial |
| Knob | KNE30448 | Tuning, Large |
| Knob | KNE25248 | Tuning, Small |
| Knob | KNE25249 | Balance |
| Knob | KNE25250 | Volume |
| Knob | KNE30449 | Bass, Treble |

## WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors
Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting) ..... Use BELDEN No. 8401
Phono Pick-up Arm Cable ..... Use BELDEN No. 8430 (Two Conductor - Twisted)

PHOTOFACT® Folder

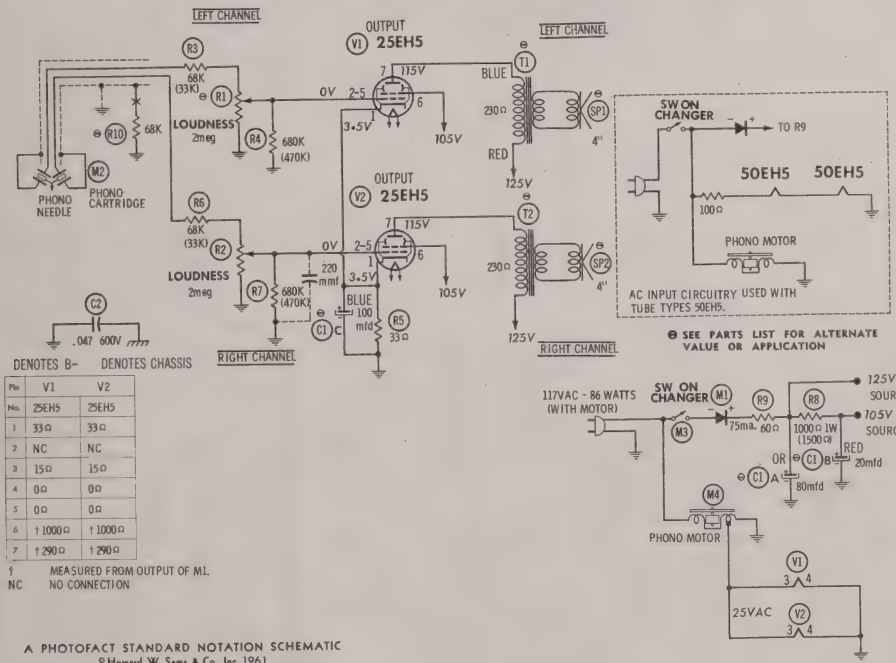
**PHILCO MODELS
H-1385, H-1413**

PHILCO MODELS
H-1385, H-1413

MODEL H-1413

| | |
|---|---|
| TRADE NAME | Philco Models H-1385, H-1413L, H-1413WL |
| MANUFACTURER | Philco Corp., Tioga & C Streets, Philadelphia, Pa. |
| TYPE SET | AC Operated 2 Tube Stereo Phono Amplifier With 4 Speed Automatic Record Changer |
| POWER SUPPLY | 105- 125 Volts AC, 60 Cycles RATING 86 Watts, .78 Amp. @117 Volts AC (Less Motor) |

MODEL H-1385 HAS A 4-SPEED MANUAL RECORD PLAYER. MODEL H-1413 HAS A 4-SPEED AUTOMATIC RECORD CHANGER M-4255. FOR SERVICE INFORMATION ON CHANGER — SEE SIMILAR V-M 959 — PHOTOFACT SET 396 FOLDER 13 OR RECORD CHANGER MANUAL RC-11




| Pin No. | V1 | V2 |
|---|---|---|
| 1 | 33Ω | 33Ω |
| 2 | NC | NC |
| 3 | 15Ω | 15Ω |
| 4 | 0Ω | 0Ω |
| 5 | 0Ω | 0Ω |
| 6 | ↑1000Ω | ↑1000Ω |
| 7 | ↑290Ω | ↑290Ω |

↑ MEASURED FROM OUTPUT OF M1.
NC NO CONNECTION

A PHOTOFACT STANDARD NOTATION SCHEMATIC

© Howard W. Sams & Co., Inc. 1961

**HOWARD W. SAMS & CO., INC.** Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of KT156

the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

# PARTS LIST AND DESCRIPTIONS

## TUBES

| • GENERAL ELECTRIC • RAYTHEON • SYLVANIA • | | | | | |
|---|---|---|---|---|---|
| ITEM No. | USE | TYPE | ITEM No. | USE | TYPE |
| V1 | Left Channel Output | 25EH5 | V2 | Right Channel Output | 25EH5 |

## ELECTROLYTIC CAPACITORS

| ITEM No. | RATING CAP. | RATING VOLT. | REPLACEMENT DATA PHILCO PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | PYRAMID PART No. | SPRAGUE PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| C1A | 80 | 150 | 30-2575-49 | PR3-085 | BBRT8215C10 | WQ215 | TDLT-19 | TVA-3437 | Note 1 |
| B | 20 | 150 | | | | | | | |
| C | 100 | 6 | | | | | | | |

Note 1. Part #30-2568-79 used in Model 1385.

## FIXED CAPACITORS

**Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|
| C2 | .047 600V | | P688N-047 | DD-503 | CUB6S47 | 6DP-3-473 | GEM-6147 | 6TM-P47 |

## CONTROLS

| ITEM No. | RATING RESISTANCE | RATING WATTS | REPLACEMENT DATA PHILCO PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | CTS-IRC PART No. | MALLORY PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| R1A | 2meg | ½ | 33-5572-46 | B-76 | A47-2meg-Z | Q13-139 | U55 | Loudness, Channel 1. Note 1 |
| B | Shaft | | | Not Req. | FS-3 | Not Req. | Not Req. | |
| R2A | 2meg | ½ | 33-5572-46 | B-76 | A47-2meg-Z | Q13-139 | U55 | Loudness, Channel 2 |
| B | Shaft | | | Not Req. | FS-3 | Not Req. | Not Req. | |

Note 1. Model H-1385 uses 2meg volume with switch (Part #33-5588-14).

## RESISTORS (IRC or EQUIVALENT)

**All wattages 1/2 watt, or less, unless otherwise listed.**

| ITEM No. | RATING | REMARKS |
|---|---|---|
| R3 | 68K | (33K) * |
| R4 | 680K | (470K) * |
| R5 | 33Ω | |

| ITEM No. | RATING | REMARKS |
|---|---|---|
| R6 | 68K | (33K) * |
| R7 | 680K | (470K) * |
| R8 | 1000Ω 1W | (1500Ω) * |

| ITEM No. | RATING | REMARKS |
|---|---|---|
| R9 | 60Ω | |
| R10 | 68K | Note 1 |

Note 1. Not used in some versions.
* Alternate Value.

## TRANSFORMER (AUDIO OUTPUT)

| ITEM No. | IMPEDANCE PRI. | IMPEDANCE SEC. | REPLACEMENT DATA PHILCO PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|
| T1 | 2700Ω | 3-4Ω | 32-8929-1① | A-3025② | A-3876 | 22S46 | S-1X | ① Part #32-8928-1 Used in Model H-1385. |
| T2 | 2700Ω | 3-4Ω | 32-8929-1① | A-3025② | A-3876 | 22S46 | S-1X | ② Drill New Mounting Hole. |

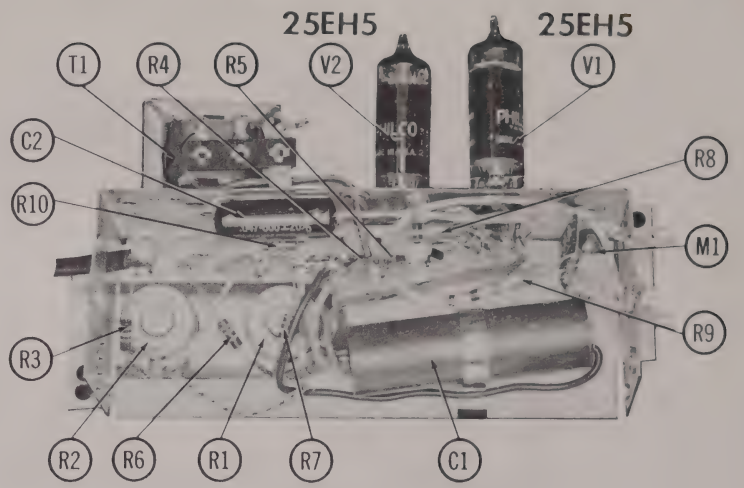
## SPEAKER

| ITEM No. | TYPE SIZE | TYPE FIELD | TYPE V. C. IMP. | REPLACEMENT DATA PHILCO PART No. | QUAM PART No. | NOTES |
|---|---|---|---|---|---|---|
| SP1 | 4" | PM | 3-4Ω | 36-1673-15 † | 4A07 | † Model H-1413. Alternate Part #36-1654-8. |
| SP2 | 4" | PM | 3-4Ω | 36-1673-14 ♦ | 4A07 | ♦ Model H-1413. Includes T2. Alternate Part #36-1673-8. |
| | 4" | PM | 3-4Ω | 36-1654-4 * | 4A1 | * Model H-1385. Includes T2. |
| | 4" | PM | 3-4Ω | 36-1654-18 ‡ | 4A07 | ‡ Model H-1385 |

## POWER RECTIFIERS

| ITEM No. | RATING CURRENT (Measured) | REPLACEMENT DATA PHILCO PART No. | RCA PART No. | SARKES TARZIAN PART No. | SYLVANIA PART No. | NOTES |
|---|---|---|---|---|---|---|
| M1 | .075A | 34-8050-5 * | 1N1763 * | K 300 * | SR 200 * | * Silicon Type |

# CHASSIS—BOTTOM VIEW




## PHONO CARTRIDGE & NEEDLES

*NEEDLE LISTINGS SHOWN ARE FOR RESPECTIVE REPLACEMENT CARTRIDGES ONLY.

| ITEM No. | PHILCO PART No. CARTRIDGE | PHILCO PART No. NEEDLE* | ASTATIC PART No. CARTRIDGE | ASTATIC PART No. NEEDLE* | ELECTRO-VOICE PART No. CARTRIDGE | ELECTRO-VOICE PART No. NEEDLE* | SONOTONE PART No. CARTRIDGE | SONOTONE PART No. NEEDLE* | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| M2 | | | 70TS | N8-3 * & N8-7 * | 96T | Not Req. | 12TH-S | Not Req. | |

## MISCELLANEOUS

| ITEM No. | PART NAME | PHILCO PART No. | NOTES |
|---|---|---|---|
| M3 | Switch | | Off-On (Part of Changer) |
| M4 | Motor | | Phono Drive (Part of Changer) |

## CABINETS & CABINET PARTS

**(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)**

| NAME | PART NO. | DESCRIPTION |
|---|---|---|
| Knob | 54-6427-4 | Loudness, Model H-1413 |
| Knob | 54-6446-1 | Loudness, Model H-1385 |
| Cabinet | 51-0119-1 | Model H-1385 |
| Cabinet | 51-0105-2 | Model H-1413WL |
| Cabinet | 51-0105-1 | Model H-1413L |
| Handle | 54-5211-23 | Model H-1385 |

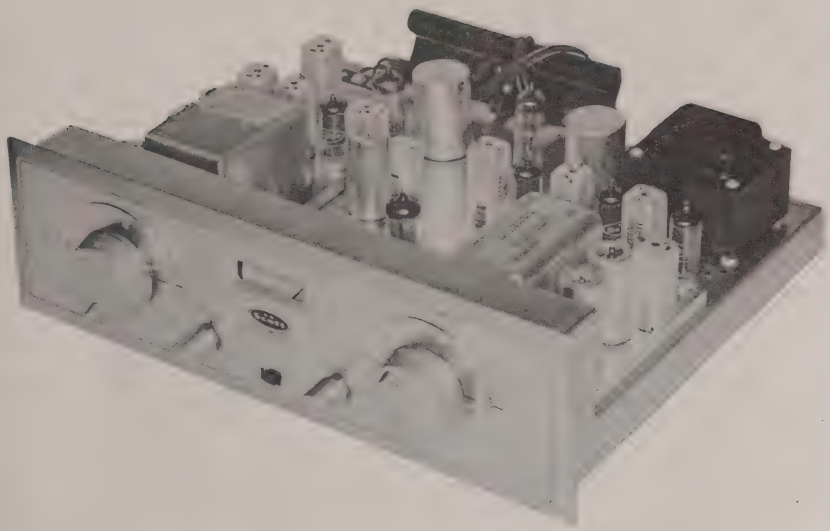
## WIRING DATA

| | |
|---|---|
| General-use Unshielded Hook-up Wire | Use BELDEN No. 8530 (Solid) Available in Ten Colors |
| | 8524 (Stranded) Available in Ten Colors |
| Power Cord | Use BELDEN No. 1785-B (6 Ft. Length) |
| | 1725-K (7½ Ft. Length) |
| Low-Loss Shielded Lead (Interconnecting) | Use BELDEN No. 8401 |
| Phono Pick-up Arm Cable | Use BELDEN No. 8430 (Two Conductor - Twisted) |

PHOTOFACT® Folder

**H. H. SCOTT**
**MODEL 330-D**

H. H. SCOTT
MODEL 330-D

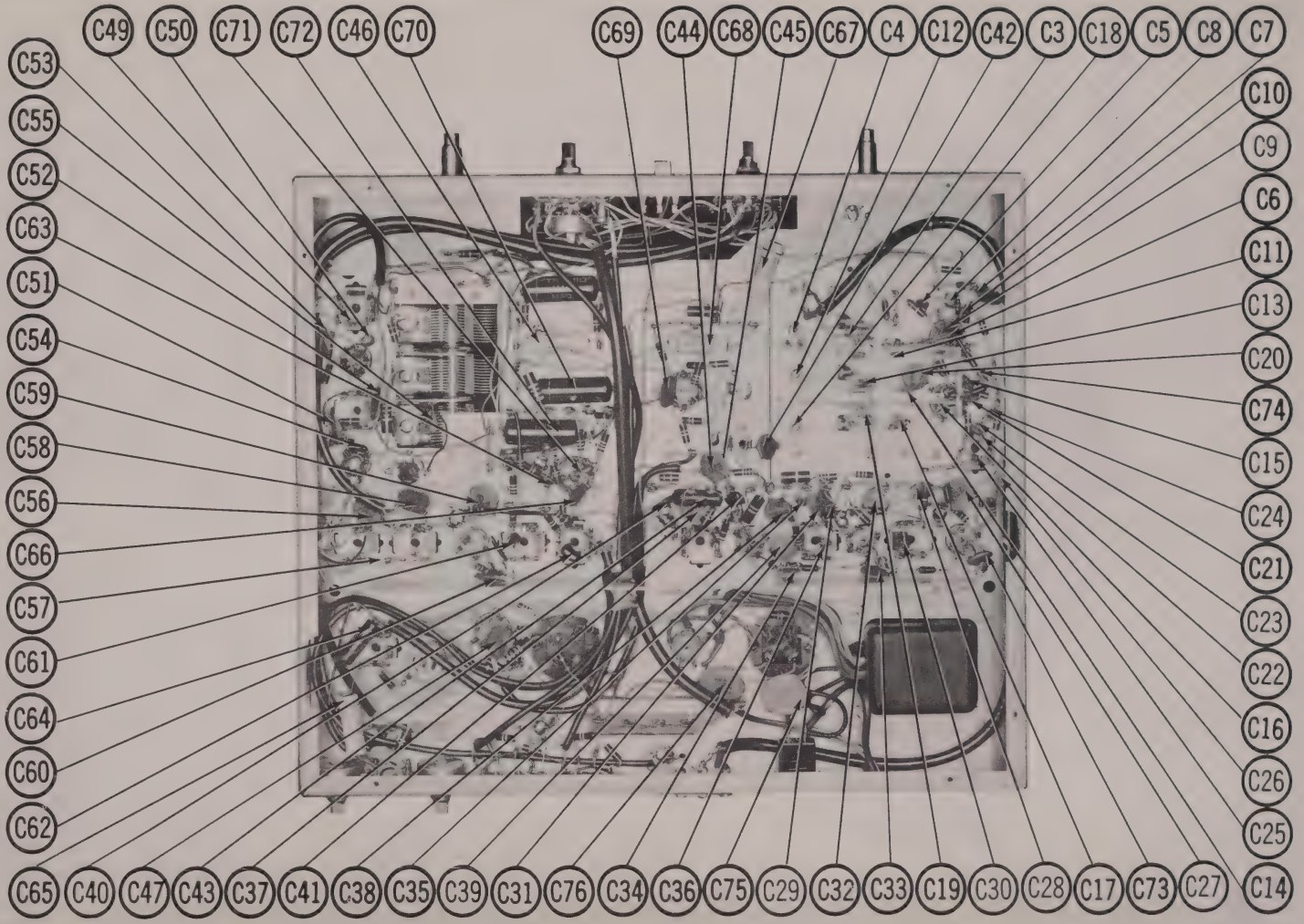


H. H. SCOTT
MODEL 330-D

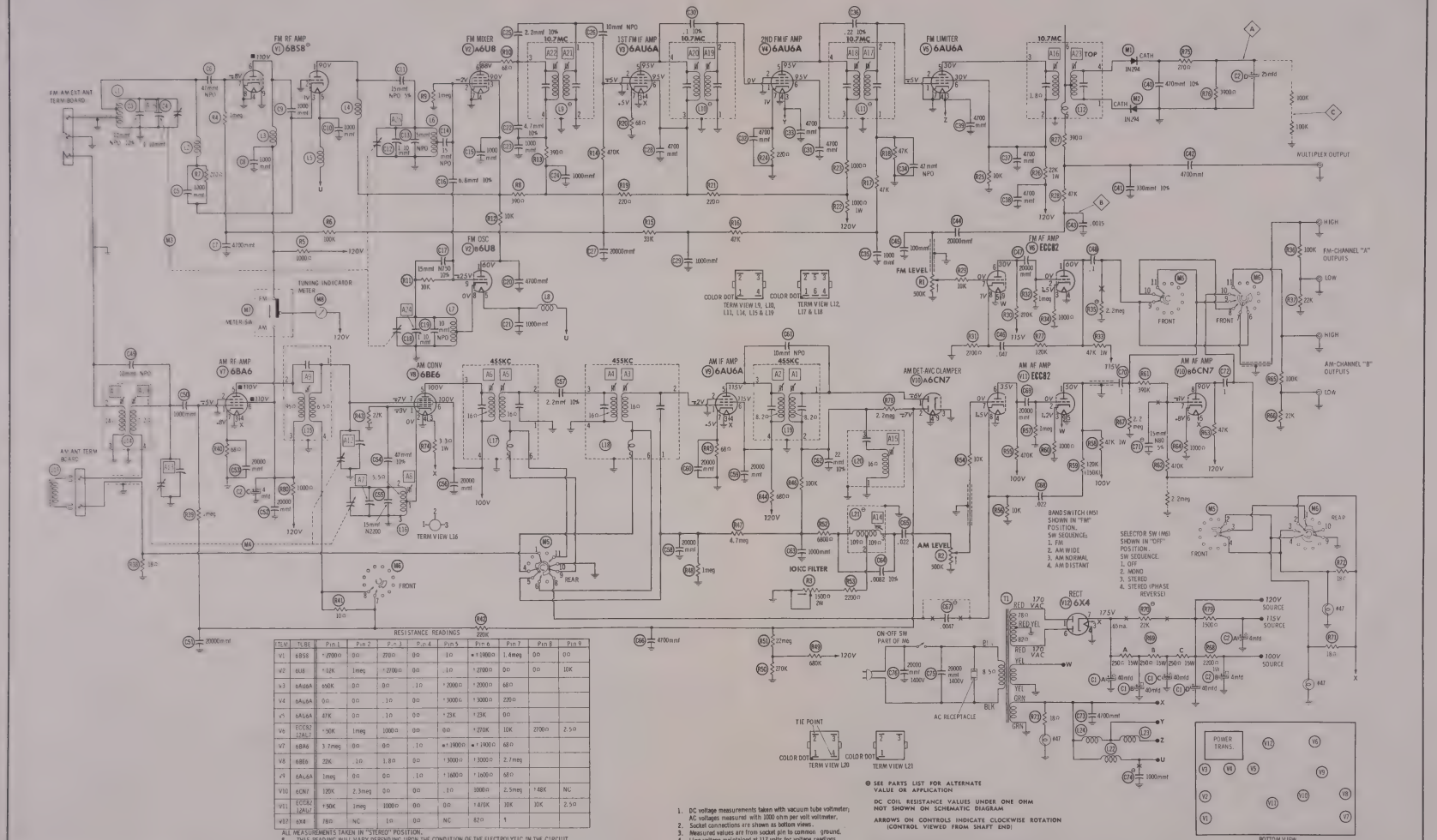
| | |
|---|---|
| TRADE NAME | H. H. Scott Model 330-D |
| MANUFACTURER | Herman Hosmer Scott, Inc., 111 Powder Mill Road, Maynard, Mass. |
| TYPE SET | AC Operated 12 Tube FM-AM Tuner |
| POWER SUPPLY | 105-125 Volts AC, 50-60 Cycles RATING 46 Watts, .42 Amp. @117 Volts AC |
| TUNING RANGE—BROADCAST | 530 — 1630KC FREQ. MOD. 88 — 108MC |

**HOWARD W. SAMS & CO., INC.** Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America




CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION


FM RF AMP V1 6BS8
FM MIXER V2 6U8
1ST FM IF AMP V3 6AU6A
2ND FM IF AMP V4 6AU6A
FM LIMITER V5 6AU6A
FM OSC V2 6U8
FM AF AMP V6 ECC82
FM DET-AVC CLAMPER V10 6CN7
AM RF AMP V7 6BA6
AM CONV V8 6BE6
AM IF AMP V9 6AU6A
AM DET-AVC CLAMPER V10 6CN7
AM AF AMP V11 ECC82
AM AF AMP V10 6CN7
RECT V12 6X4
10.7MC
455KC
FM LEVEL
AM LEVEL
IOKC FILTER
MULTIPLEX OUTPUT
FM-CHANNEL "A" OUTPUTS
AM-CHANNEL "B" OUTPUTS
TUNING INDICATOR METER
BAND SWITCH (MS) SHOWN IN "FM" POSITION. SW SEQUENCE: 1. FM 2. AM WIDE 3. AM NORMAL 4. AM DISTANT
SELECTOR SW (M6) SHOWN IN "OFF" POSITION. SW SEQUENCE: 1. OFF 2. MONO 3. STEREO 4. STEREO (PHASE REVERSE)
ON-OFF SW PART OF M6
AC RECEPTACLE
TERM VIEW L16
TERM VIEW L9, L10, L11, L14, L15 & L19
TERM VIEW L12, L17 & L18
TERM VIEW L20
TERM VIEW L21
TIE POINT
FRONT
REAR
BOTTOM VIEW TUBE LAYOUT
POWER TRANS.

RESISTANCE READINGS

| TUBE | TUBE | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| V1 | 6BS8 | †.2700Ω | 0Ω | 270Ω | 0Ω | 10 | ■†.1900Ω | 1.4meg | 0Ω | 0Ω |
| V2 | 6U8 | †12K | 1meg | †.2700Ω | 0Ω | 10 | †.2700Ω | 0Ω | 0Ω | 10K |
| V3 | 6AU6A | 650K | 0Ω | 0Ω | 10 | †.2000Ω | †.2000Ω | 68Ω | | |
| V4 | 6AU6A | 0Ω | 0Ω | 10 | 0Ω | †.3000Ω | †.3000Ω | 220Ω | | |
| V5 | 6AU6A | 47K | 0Ω | 10 | 0Ω | †.23K | †.23K | 0Ω | | |
| V6 | ECC82 12AU7 | †.50K | 1meg | 1000Ω | 0Ω | 0Ω | †.270K | 10K | 270Ω | 2.5Ω |
| V7 | 6BA6 | 3.7meg | 0Ω | 0Ω | 10 | ■†.1900Ω | ■†.1900Ω | 68Ω | | |
| V8 | 6BE6 | 22K | 10 | 1.8Ω | 0Ω | †.3000Ω | †.3000Ω | 2.7meg | | |
| V9 | 6AU6A | 1meg | 0Ω | 0Ω | 10 | †.1600Ω | †.1600Ω | 68Ω | | |
| V10 | 6CN7 | 120K | 2.3meg | 0Ω | 0Ω | 10 | 1000Ω | 2.5meg | †.48K | NC |
| V11 | ECC82 12AU7 | †.50K | 1meg | 1000Ω | 0Ω | 0Ω | †.470K | 10K | 10K | 2.5Ω |
| V12 | 6X4 | 78Ω | NC | 10 | 0Ω | NC | 82Ω | 1 | | |

ALL MEASUREMENTS TAKEN IN "STEREO" POSITION.
† THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
■ TAKEN WITH TUNING METER REMOVED FROM CIRCUIT.
NC NO CONNECTION

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

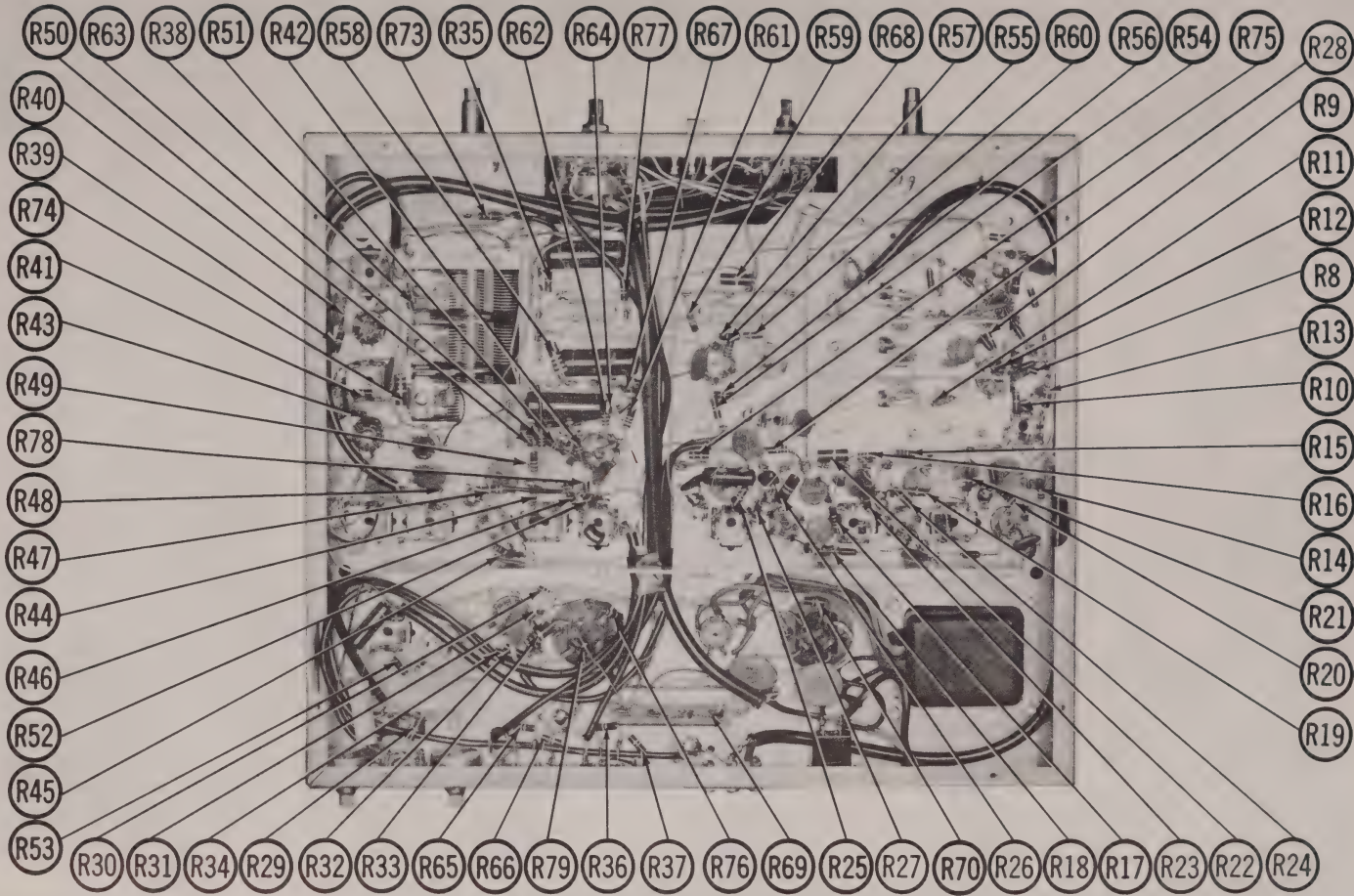
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
©Howard W. Sams & Co., Inc. 1961

**H. H. SCOTT MODEL 330-D**




CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION



FOLDER 10
MODEL 330-D
H. H. SCOTT

# ALIGNMENT INSTRUCTIONS

**ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT**

Use only enough generator output to provide a usable indication.

Suggested Alignment Tools:

| | |
|---|---|
| A1 thru A6, A9, A10, A11, A17 thru A22 | GENERAL CEMENT #5097, 8727<br>WALSCO #2515 |
| A7, A12, A13 | GENERAL CEMENT #5004, 5008, 5009<br>WALSCO #2520 |
| A8, A14, A15, A16, A23 | GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440<br>WALSCO #2526, 2543, 2544, 2545 |
| A24, A25, A26 | GENERAL CEMENT #8721, 8722<br>WALSCO #2519 |

AM ALIGNMENT—SELECTOR IN AM POSITION

| | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | CONNECT VTVM | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| 1. | High side thru .05mfd to pin 7 (grid) of AM Converter. Low side to chassis. | 455KC (400∿ Mod.) | (AM) Tuning gang fully open. | AC probe across AM output jack. Common to chassis. | A1, A2, A3, A4, A5, A6 | Adjust for maximum output. |
| 2. | High side thru 200mmf to AM antenna terminal. Low side to chassis. | 1630KC | " | " | A7 | " |
| 3. | " | 600KC | 600KC | " | A8, A9, A10, A11 | " |
| 4. | " | 1400KC | 1400KC | " | A12, A13 | " |
| 5. | " | 1400KC (10KC Mod.) | " | " | A14, R3 | Adjust for MINIMUM output. |
| 6. | " | 455KC (High Output) | 1000KC | " | A15 | " |

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM—SELECTOR IN FM POSITION

Connect two matched 100K (± 1%) resistors in series from point Ⓐ to chassis. The junction of these two resistors is alignment point Ⓒ as shown on the schematic.

| | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | CONNECT VTVM | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| 7. | High side to ungrounded tube shield floating over FM Mixer-Osc. Low side to chassis. | 10.7MC (Unmod.) | (FM) Point of non-interference. | DC probe to point Ⓐ. Common to chassis. | A16, A17, A18, A19, A20, A21, A22 | Adjust for maximum deflection. |
| 8. | " | " | " | DC probe to point Ⓑ. Common to point Ⓒ. | A23 | Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting. |

10.7MC

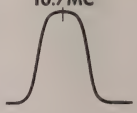


FIG. 1

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE—SELECTOR IN FM POSITION

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

| | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | CONNECT SCOPE | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| 7. | High side to ungrounded tube shield floating over FM Mixer -Osc. Low side to chassis. | 10.7MC (450KC Swp) | (FM) Point of non-interference. | Vert. amp. to point Ⓐ. Low side to chassis. | A16, A17, A18, A19, A20, A21, A22 | Disconnect stabilizing capacitor C2D. Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown. Reconnect C2D. |
| 8. | " | " | " | Vert. amp. to point Ⓑ. Low side to chassis. | A23 | Adjust to place marker at the center of crossover lines similar to Fig. 2. SLIGHTLY retouch A16 for maximum amplitude and straightness of cross-over lines. |

10.7MC

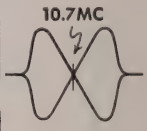
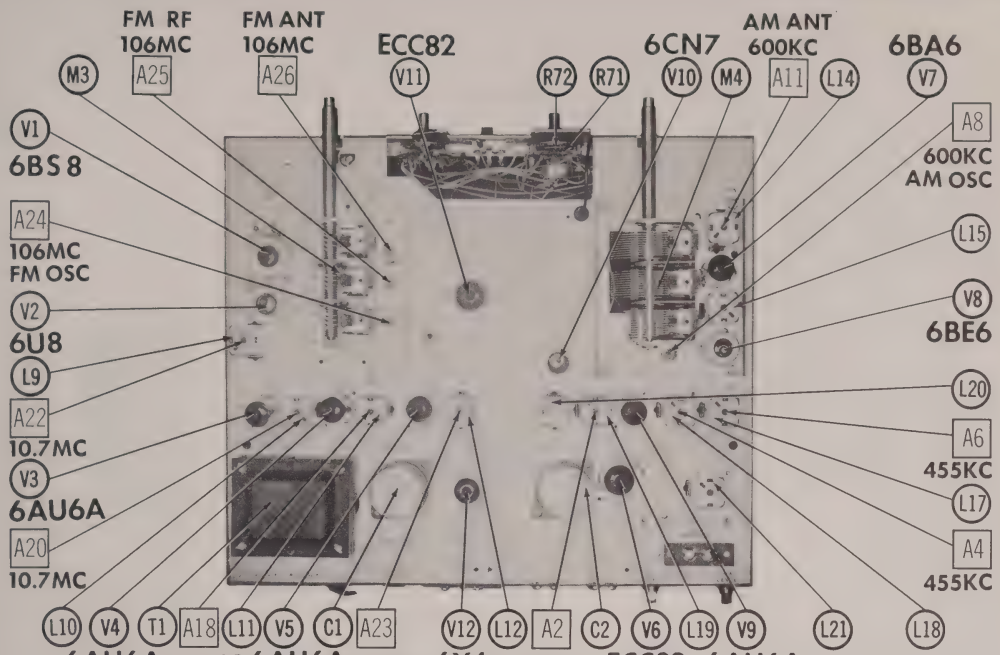


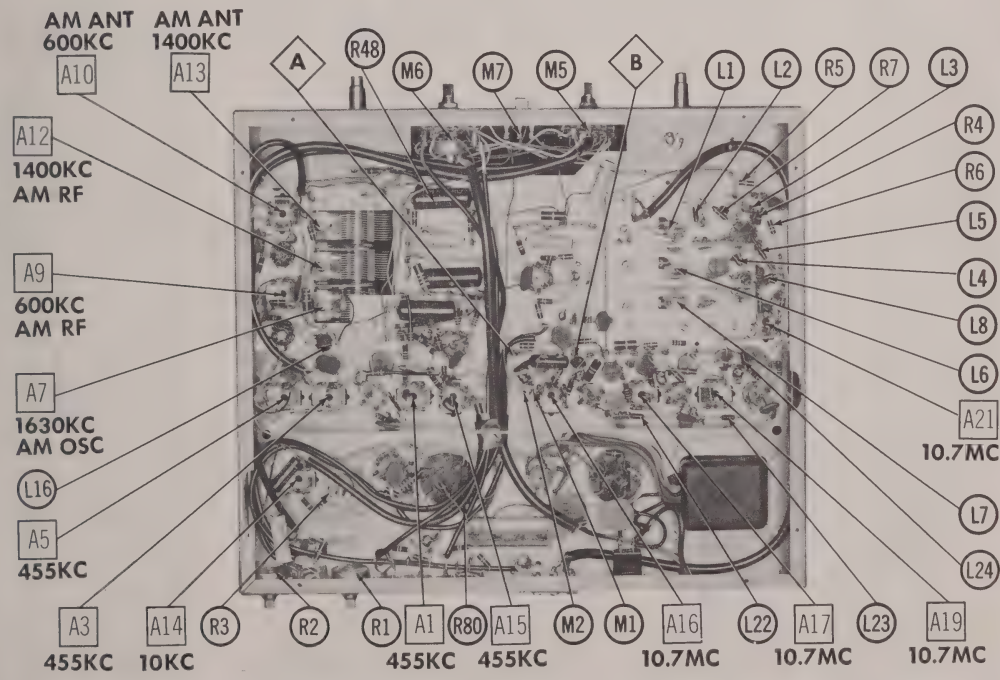
FIG. 2

FM RF ALIGNMENT—SELECTOR IN FM POSITION

| | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | CONNECT VTVM | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| 8. | High side thru 270Ω to FM antenna terminal. Low side to chassis. | 106MC (Unmod.) | (FM) 106MC | DC probe to point Ⓐ. Common to chassis. | A24, A25, A26 | Adjust for maximum deflection. |
| 9. | " | 92MC | 92MC | " | L7, L6, L1 | Adjust for maximum deflection by compressing or expanding coil turns. |




CHASSIS - TOP VIEW




CHASSIS BOTTOM VIEW - ALIGNMENT, INDUCTOR, MISC. IDENT.

# PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | USE | TYPE (GENERAL ELECTRIC / RAYTHEON / SYLVANIA) |
|---|---|---|
| V1 | FM RF Amplifier | 6BS8 (6BQ7) * |
| V2 | FM Mixer-FM Osc. | 6U8 |
| V3 | 1st FM IF Amplifier | 6AU6A |
| V4 | 2nd FM IF Amplifier | 6AU6A |
| V5 | FM Limiter | 6AU6A |
| V6 | FM AF Amplifier | ECC82/12AU7 |
| V7 | AM RF Amplifier | 6BA6 |
| V8 | AM Converter | 6BE6 |
| V9 | AM IF Amplifier | 6AU6A |
| V10 | AM Det.-AVC Clamper-AM AF Amplifier | 6CN7 |
| V11 | AM AF Amplifier | ECC82/12AU7 |
| V12 | Rectifier | 6X4 |

* Alternate

## ELECTROLYTIC CAPACITORS

| ITEM No. | RATING CAP. | RATING VOLT. | REPLACEMENT DATA: H. H. SCOTT PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | PYRAMID PART No. | SPRAGUE PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| C1A | ▲40 | 250 | CEC-4X40/250 | | | FP327, 89 | TMQ-4104 | TVLS-4538 * | |
| B | ■40 | 250 | | | | TC58 | | | |
| C | ▲40 | 250 | | | | | | | |
| D | 40 | 250 | | | | | | | |
| C2A | ▲4 | 250 | CEC-3X4/250-25/25 | AFH4-114-55 | D0070 | WP433.6 | TMQ-4607 | TVL-4759.7 | |
| B | ■4 | 250 | | | BBR25-25 | TC26 | TD-25-25 | TVA-1205 | |
| C | ▲4 | 250 | | | | | | | |
| D | 25 | 25 | | | | | | | |

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

## FIXED CAPACITORS

**Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA: AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|
| C3 | 12 NPO 10% | | | TCZ-12 | C10Q12C | CCTO-120 | CN7-412 | 10TCC-Q12 |
| C4 | 1-10 | | | 829-10 | | | | |
| C5 | 1000 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C6 | 47 NPO | | NPO-DI 47 | DTZ-47 | C10Q47C | CCTO-470 | CNO-447 | 10TCC-Q47 |
| C7 | 4700 | | BPD-0047 | DD-472 | BYA10D47M | CCD-472 | B-247 | 5HK-D47 |
| C8 | 1000 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C9 | 1000 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C10 | 1000 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C11 | 15 NPO 5% | | | DTZ-15 | C10Q15C | CCTO-150 | CNO-415 | 10TCC-Q15 |
| C12 | 1-10 | | | 829-10 | | | | |
| C13 | 5 NPO | | NPO-DI 5.0 | DTZ-4R7 | C10V5C | CCTO-050 | CNO-547 | 10TCC-V50 |

## FIXED CAPACITORS (cont)

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA: AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|
| C14 | 15 NPO | | NPO-DI 15 | DTZ-15 | C10Q15C | CCTO-150 | CNO-415 | 10TCC-Q15 |
| C15 | 1000 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C16 | 6.8 10% | | NPO-SI 6.8 | TCZ-6R8 | C10V68C | CCTO-6R8 | CNO-568 | 10TCC-V68 |
| C17 | 15 N750 10% | | N750-DI 15 | DTN-15 | C10Q15U | CCTN-150 | CN7-415 | 10TCU-Q15 |
| C18 | 1-10 | | | 829-10 | | | | |
| C19 | 10 NPO | | NPO-DI 10 | DTZ-10 | C10Q1C | CCTO-100 | CNO-410 | 10TCC-Q10 |
| C20 | 4700 | | BPD-0047 | DD-472 | BYA10D47M | CCD-472 | B-247 | 5HK-D47 |
| C21 | 1000 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C22 | 4.7 10% | | NPO-SI 4.7 | TCZ-4R7 | C10V47C | CCTO-4R7 | CNO-547 | 10TCC-V47 |
| C23 | 1000 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C24 | 1000 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C25 | 2.2 10% | | NPO-SI 2.2 | TCZ-2R2 | C10V22C | CCTO-2R2 | CNO-522 | 10TCC-V22 |
| C26 | 10 NPO | | NPO-DI 10 | DTZ-10 | C10Q1C | CCTO-100 | CNO-410 | 10TCC-Q10 |
| C27 | 20000 | | BPD-02 | DD-203 | BYB6S2 | CCD-203 | B-120 | 5HK-S20 |
| C28 | 4700 | | BPD-0047 | DD-472 | BYA10D47M | CCD-472 | B-247 | 5HK-D47 |
| C29 | 1000 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C30 | .1 10% | | | | | | | |
| C31 | 4700 | | BPD-0047 | DD-472 | BYA10D47M | CCD-472 | B-247 | 5HK-D47 |
| C32 | 4700 | | BPD-0047 | DD-472 | BYA10D47M | CCD-472 | B-247 | 5HK-D47 |
| C33 | 4700 | | BPD-0047 | DD-472 | BYA10D47M | CCD-472 | B-247 | 5HK-D47 |
| C34 | 47 NPO | | NPO-DI 47 | DTZ-47 | C10Q47C | CCTO-470 | CNO-447 | 10TCC-Q47 |
| C35 | 1000 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C36 | .22 10% | | | | | | | |
| C37 | 4700 | | BPD-0047 | DD-472 | BYA10D47M | CCD-472 | B-247 | 5HK-D47 |
| C38 | 4700 | | BPD-0047 | DD-472 | BYA10D47M | CCD-472 | B-247 | 5HK-D47 |
| C39 | 4700 | | BPD-0047 | DD-472 | BYA10D47M | CCD-472 | B-247 | 5HK-D47 |
| C40 | 470 10% | | 1469-00047 | | 5R5T47 | CM-19B-471K | MCJ244 | MS-347 |
| C41 | 330 10% | | 1469-00033 | | 5R5T33 | CM-19B-331K | MCB241 | MS-331 |
| C42 | 4700 | | BPD-0047 | DD-472 | BYA10D47 | CCD-472 | B-247 | 5HK-D47 |
| C43 | .0015 400V | | P488N-0015 | D6-152 | CUB6D15 | 6DP-1-152 | GEM-6215 | 6TM-D15 |
| C44 | 20000 | | BPD-02 | DD-203 | BYB6S2 | CCD-203 | B-120 | 5HK-S20 |
| C45 | 100 | | BPD-0001 | DD-101 | L10T1 | CCD-101 | GP310 | 10TS-T10 |
| C46 | .047 400V | | P488N-047 | DD-503 | CUB4S47 | 4DP-3-473 | GEM-4147 | 4TM-S47 |
| C47 | 20000 | | BPD-02 | DD-203 | BYB6S2 | CCD-203 | B-120 | 5HK-S20 |
| C48 | .1 400V | | P488N-1 | DF-104 | CUB4P1 | 4DP-3-104 | GEM-401 | 4TM-P10 |
| C49 | 10 NPO | | NPO-DI 10 | DTZ-10 | C10Q1C | CCTO-100 | CNO-410 | 10TCC-Q10 |
| C50 | 1000 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C51 | 20000 | | BPD-02 | DD-203 | BYB6S2 | CCD-203 | B-120 | 5HK-S20 |
| C52 | 20000 | | BPD-02 | DD-203 | BYB6S2 | CCD-203 | B-120 | 5HK-S20 |
| C53 | 20000 | | BPD-02 | DD-203 | BYB6S2 | CCD-203 | B-120 | 5HK-S20 |
| C54 | 47 10% | | 1469-000047 | DTZ-47 | 22R5Q47 | CM-19B-470M | CNO-447 | MS-447 |
| C55 | 15 N2200 | | | | | * | | |
| C56 | 20000 | | BPD-02 | DD-203 | BYB6S2 | CCD-203 | B-120 | 5HK-S20 |
| C57 | 2.2 10% | | NPO-SI 2.2 | TCZ-2R2 | C10V22C | CCTO-2R2 | CNO-522 | 10TCC-V22 |
| C58 | 20000 | | BPD-02 | DD-203 | BYB6S2 | CCD-203 | B-120 | 5HK-S20 |
| C59 | 20000 | | BPD-02 | DD-202 | BYB6S2 | CCD-203 | B-120 | 5HK-S20 |
| C60 | 20000 | | BPD-02 | DD-203 | BYB6S2 | CCD-203 | B-120 | 5HK-S20 |
| C61 | 10 NPO | | NPO-DI 10 | DTZ-10 | C10Q1C | CCTO-100 | CNO-410 | 10TCC-Q10 |
| C62 | 22 10% | | 1469-000022 | DTZ-22 | 22R5Q22 | CM-19B-220K | CNO-422 | MS-422 |

# PARTS LIST AND DESCRIPTIONS (Continued)

## FIXED CAPACITORS (cont)

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
| C63 | 1000 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C64 | .0082 400V 10% | | P684CM-0082 | | DPMS6D82 | 6DP-2-822 | GEM-16282 | 6PS-D82 |
| C65 | .022 400V | | P488N-022 | DD-203 | CUB4S22 | 4DP-2-223 | GEM-4122 | 4TM-S22 |
| C66 | 4700 | | BPD-0047 | DD-472 | BYA10D47 | CCD-472 | B-247 | 5HK-D47 |
| C67 | .0047 400V | Note 1 | P488N-0047 | D6-472 | CUB6D47 | 6DP-1-472 | GEM-6247 | 6TM-D47 |
| C68 | .022 400V | | P488N-022 | DD-203 | CUB4S22 | 4DP-2-223 | GEM-4122 | 4TM-S22 |
| C69 | 20000 | | BPD-02 | DD-203 | BYB6S2 | CCD-203 | B-120 | 5HK-S20 |
| C70 | .1 400V | | P488N-1 | DF-104 | CUB4P1 | 4DP-3-104 | GEM-401 | 4TM-P10 |
| C71 | 15 N80 55% | Note 1 | | | | * | | |
| C72 | .1 400V | | P488N-1 | DF-104 | CUB4P1 | 4DP-3-104 | GEM-401 | 4TM-P10 |
| C73 | 4700 | | BPD-0047 | DD-472 | BYA10D47M | CCD-472 | B-247 | 5HK-D47 |
| C74 | 1000 | Note 1 | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C75 | 20000 1400V | | | | CUBI6S2 | 16DP-4-203 | GEM-1612 | MB-S2 |
| C76 | 20000 1400V | | | | CUBI6S2 | 16DP-4-203 | GEM-1612 | MB-S2 |

Note 1. Not used in some versions.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

## CONTROLS

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| | RESISTANCE | WATTS | H. H. SCOTT PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | CTS-IRC PART No. | MALLORY PART No. | |
| R1A | 500K | 1/2 | RCV-500K-P | BX-59 | A47-500K-S | Q11-133 | SU-50 | FM Level |
| B | Shaft | | | Not Req. | FKS-1/4 | Not Req. | Not Req. | |
| R2A | 500K | 1/2 | RCV-500K-P | BX-59 | A47-500K-S | Q11-133 | SU-50 | AM Level |
| B | Shaft | | | Not Req. | FKS-1/4 | Not Req. | Not Req. | |
| R3 | 1500Ω | 2(WW) | RWV-1.5K | | 39-1500 | 112-1500 | FL-1.5K | 10KC Filter |

## RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

| ITEM No. | RATING | REMARKS |
|---|---|---|
| R4 | 1meg | |
| R5 | 1000Ω | |
| R6 | 100K | |
| R7 | 270Ω | |
| R8 | 390Ω | |
| R9 | 1meg | |
| R10 | 68Ω | |

| ITEM No. | RATING | REMARKS |
|---|---|---|
| R11 | 10K | |
| R12 | 10K | |
| R13 | 390Ω | |
| R14 | 470K | |
| R15 | 33K | |
| R16 | 47K | |
| R17 | 47K | |

| ITEM No. | RATING | REMARKS |
|---|---|---|
| R18 | 47K | |
| R19 | 220Ω | |
| R20 | 68Ω | |
| R21 | 220Ω | |
| R22 | 1000Ω 1W | |
| R23 | 1000Ω | |
| R24 | 220Ω | |

## RESISTORS (IRC or EQUIVALENT) (cont)

| ITEM No. | RATING | REMARKS |
|---|---|---|
| R25 | 10K | |
| R26 | 22K 1W | |
| R27 | 390Ω | |
| R28 | 47K | |
| R29 | 10K | |
| R30 | 270K | |
| R31 | 2700Ω | |
| R32 | 1meg | |
| R33 | 47K 1W | |
| R34 | 1000Ω | |
| R35 | 2.2meg | Note 1 |
| R36 | 100K | |
| R37 | 22K | |
| R38 | 18Ω | |
| R39 | 1meg | |
| R40 | 68Ω | |
| R41 | 10Ω | |
| R42 | 220K | |
| R43 | 22K | |

| ITEM No. | RATING | REMARKS |
|---|---|---|
| R44 | 680Ω | |
| R45 | 68Ω | |
| R46 | 100K | |
| R47 | 4.7meg | |
| R48 | 1meg | |
| R49 | 680K | |
| R50 | 270K | |
| R51 | 22meg | |
| R52 | 6800Ω | |
| R53 | 2200Ω | |
| R54 | 10K | |
| R55 | 470K | |
| R56 | 10K | |
| R57 | 1meg | |
| R58 | 47K 1W | |
| R59 | 120K | (150K) * |
| R60 | 1000Ω | |
| R61 | 390K | |
| R62 | 470K | |

| ITEM No. | RATING | REMARKS |
|---|---|---|
| R63 | 47K | |
| R64 | 1000Ω | |
| R65 | 100K | |
| R66 | 22K | |
| R67 | 2.2meg | |
| R68 | 2200Ω 1W | |
| R69A | 250Ω | |
| B | 250Ω 15W | Pt. #RWT-750 |
| C | 250Ω | |
| R70 | 22K | Note 1 |
| R71 | 18Ω | |
| R72 | 18Ω | |
| R73 | 18Ω | |
| R74 | 3.3Ω 1W | |
| R75 | 270Ω | |
| R76 | 3900Ω | |
| R77 | 120Ω | |
| R78 | 2.2meg | |
| R79 | 1500Ω | |

Note 1. Not used in some versions.
* Alternate Value.

## COILS (RF-IF)

| ITEM No. | USE | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|
| | | H. H. SCOTT PART No. | Merit PART No. | Miller PART No. | Ram PART No. | Stancor PART No. | |
| L1 | FM Ant. Coil | | | | | | |
| L2 | RF Choke | | | 4586 | | | .33uh |
| L3 | RF Choke | | BC-561 | 4602 | | RTC-8515 | 1.2uh |
| L4 | RF Choke | | BC-561 | 4602 | | RTC-8515 | 1uh |
| L5 | Fil. Choke | | BC-561 | 4602 | | RTC-8515 | 1uh |
| L6 | FM RF Coil | | | | | | |
| L7 | FM Osc. Coil | | | | | | |
| L8 | Fil. Choke | | BC-561 | 4602 | | RTC-8515 | 1uh |
| L9 | 1st FM IF Trans. | TRV-10.71 ① | FM-254 | 1463 | | RTC-8599 | |
| L10 | 2nd FM IF Trans. | TRV-10.71 ① | FM-254 | 1463 | | RTC-8599 | |
| L11 | 3rd FM IF Trans. | TRV-10.71 ① | FM-254 | 1463 | | RTC-8599 | |
| L12 | Ratio Det. | TRV-10.7D | FM-255 | 1465 | | RTC-8600 | |
| L13 | Loopstick | Z-Ant.-AM | | | | | |
| L14 | AM Ant. Trans. | TRV-AM-A | BC-386 † | A-5495-A † | | RTC-8731 † | |
| L15 | AM RF Trans. | TRV-AM-M | BC-388 † | A-5495-RF † | | RTC-8732 † | |
| L16 | AM Osc. Coil | | BC-393 | 70-OSC | | RTC-8647 | |
| L17 | 1st AM IF Trans. | TRVS-.455IF | | | | | |
| L18 | 2nd AM IF Trans. | TRVS-.455IF | | | | | |
| L19 | 3rd AM IF Trans. | TRV-.455D | BC-353 | 12-C2 | RF-2 | RTC-8633 | |
| L20 | 455KC IF Trap | TRV-.455T | | | | | |

# PARTS LIST AND DESCRIPTIONS (Continued)

## COILS (RF-IF) (cont)

| ITEM No. | USE | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|
| | | H. H. SCOTT PART No. | Merit PART No. | Miller PART No. | Ram PART No. | Stancor PART No. | |
| L21 | 10KC Filter Coil | TRV-.01-T ② | | | | | |
| L22 | Fil. Choke | L-RFC-1 | BC-561 | 4602 | | RTC-8515 | luh |
| L23 | Fil. Choke | L-RFC-1 | BC-561 | 4602 | | RTC-8515 | luh |
| L24 | Fil. Choke | L-RFC-1 | BC-561 | 4602 | | RTC-8515 | luh |

① Alt. Part #TRV-10.7-IF.
② Part of Whistle Filter Unit Part #Z-WF-1.
† Drill Mounting Hole.

## TRANSFORMER (POWER)

| ITEM No. | RATING | | | REPLACEMENT DATA | | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. 1 | SEC. 2 | H. H. SCOTT PART No. | Merit PART No. | Ram PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | |
| T1 | 117V ⓐ .42A | 340VCT ⓐ .065A | 5V ⓐ .55A | TR-7-1 | | | | | | |
| | SEC. 3 | SEC. 4 | SEC. 5 | | | | | | | |
| | 6.3V ⓐ 3.6A | | | | | | | | | |

## CRYSTAL DIODES

| ITEM No. | ORIG. TYPE | REPLACEMENT DATA | | | NOTES |
|---|---|---|---|---|---|
| | | H. H. SCOTT PART No. | RAYTHEON PART No. | SYLVANIA PART No. | |
| M1 | 1N294 | D-1N294 | 1N294 | 1N294 | FM Det. (Pigtail) Matched |
| M2 | 1N294 | D-1N294 | 1N294 | 1N294 | FM Det. (Pigtail) Pair |

## MISCELLANEOUS

| ITEM No. | PART NAME | H. H. SCOTT PART No. | NOTES |
|---|---|---|---|
| M3 | Tuning Cap. | Z-FM-1 | FM (3 Gang) |
| M4 | Tuning Cap. | Z-AM-1 | AM (3 Gang) |
| M5 | Switch | SWR-54 | Band Switch (Rotary Wafer Type) |
| M6 | Switch | SRW-44-3 | Selector Switch (Rotary Wafer Type) |
| M7 | Switch | SS-12 | Meter (SPDT, Slide Type) |
| M8 | Meter | M-SS-3 | |

## CABINETS & CABINET PARTS

**(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)**

| NAME | PART NO. | DESCRIPTION |
|---|---|---|
| AM Dial | N-D-AM-2 | |
| FM Dial | N-D-FM-2 | |

## WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

PHOTOFACT® Folder with CIRCUITRACE®

# SILVERTONE MODELS 1053, 1055, 1056, (CH. 528.53970, 528.53980)

SILVERTONE MODELS 1053, 1055, 1056, (CH. 528.53970, 528.53980)

MODEL 1055

SILVERTONE MODELS 1053, 1055, 1056, (CH. 528.53970, 528.53980)

| | |
|---|---|
| TRADE NAME | Silvertone Models 1053 (Ch. 528.53970); 1055, 1056 (Ch. 528.53980) |
| SUPPLIER | Sears, Roebuck & Co., 925 S. Homan Avenue, Chicago, Illinois |
| TYPE SET | AC Operated 5 Tube AM Receiver With Stereo Amplifier and 4-Speed Automatic Record Changer |
| POWER SUPPLY | 110 — 120 Volts AC, 60 Cycles RATING 30 Watts, .32 Amp. @ 117 Volts AC (Less Motor) |
| TUNING RANGE—BROADCAST | 540 — 1600KC |

FOR SERVICE INFORMATION ON RECORD CHANGER 528.57320 OR 528.57321 — SEE SIMILAR SILVERTONE 528.56350 — PHOTOFACT SET 417 FOLDER 10 OR RECORD CHANGER MANUAL RC-12

## ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer, if available. If not, connect a .1mfd capacitor in series with low side of signal generator. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools:
A1 Thru A4....GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8729, 8987, 8988, 8989
WALSCO #2515, 2531, 2532
A5, A7.....GENERAL CEMENT #5004, 5008, 5009
WALSCO #2520
A6.....GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545

| | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | OUTPUT METER | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| 1. | High side thru .1mfd to RF stator lug of tuning gang. Low side to chassis. | 455KC (400~ Mod.) | Tuning gang fully open. | Across voice coil. | A1, A2, A3, A4 | Adjust for maximum output. |
| 2. | " | 1630KC | " | " | A5 | " |
| 3. | " | 532KC | Tuning gang fully closed. | " | A6 | Adjust for maximum output. Repeat Steps 2 and 3. |
| 4. | Loop | 1400KC | 1400KC | " | A7 | Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output. |

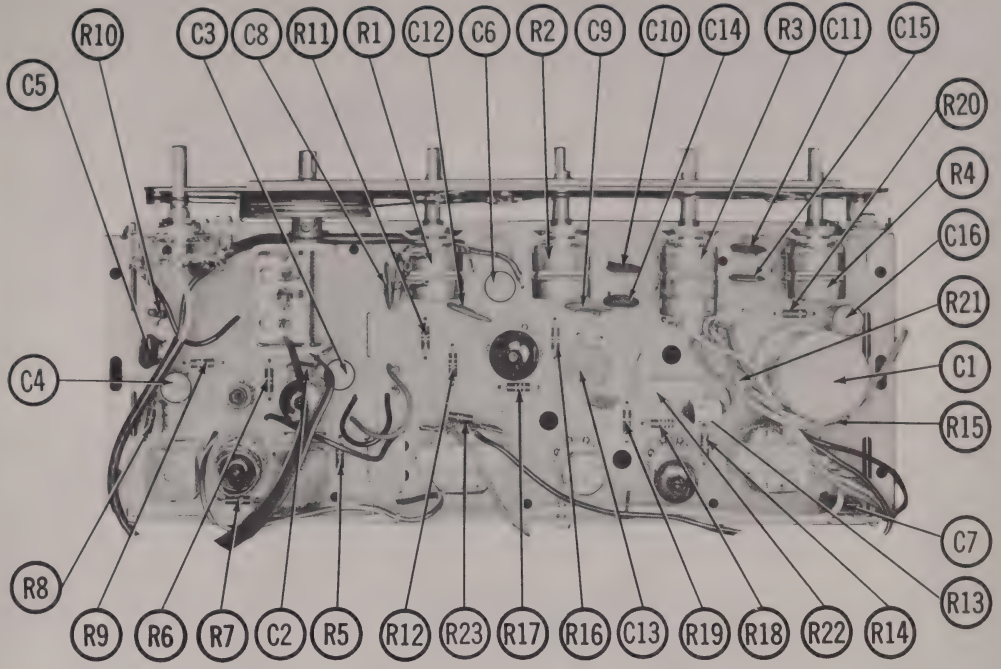
**HOWARD W. SAMS & CO., INC.** Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

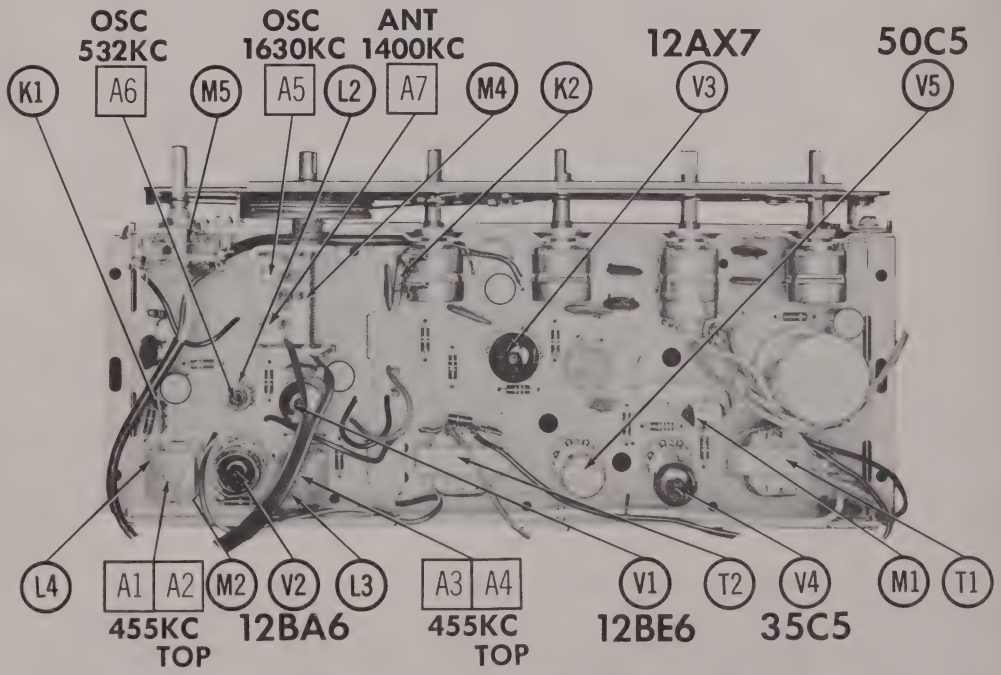
KP398



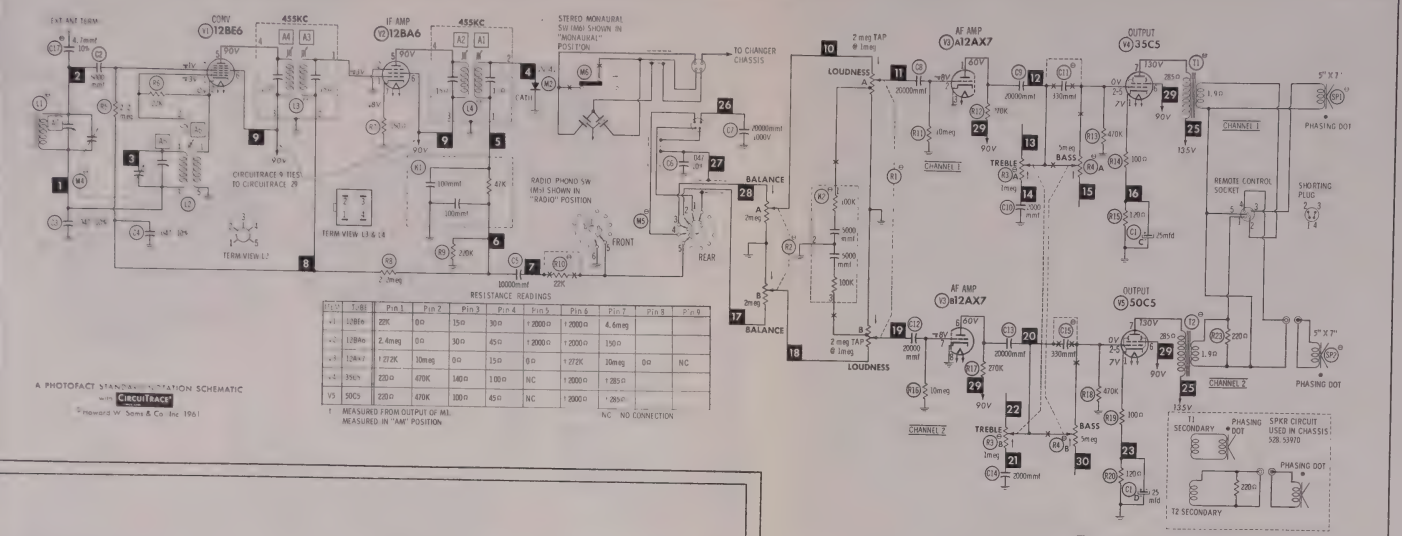
SET 518 FOLDER 11




PRINTED BOARD-CAPACITOR & RESISTOR IDENT.




PRINTED BOARD-ALIGNMENT, TUBE, MISC. IDENT.



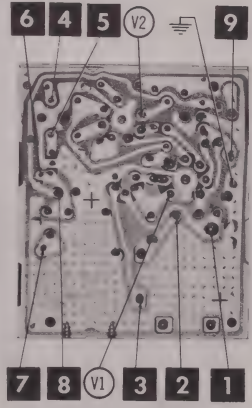

| Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |
|---|---|---|---|---|---|---|---|---|---|
| V1 12BE6 | 22K Ω | 0 Ω | 15 Ω | 30 Ω | ↑ 2000 Ω | ↑ 2000 Ω | 4.6 meg | | |
| V2 12BA6 | 2.4 meg | 0 Ω | 30 Ω | 45 Ω | ↑ 2000 Ω | ↑ 2000 Ω | 150 Ω | | |
| V3 ½12AX7 | ↑ 272K | 10 meg | 0 Ω | 15 Ω | 0 Ω | ↑ 272K | 20 meg | 0 Ω | NC |
| V4 35C5 | 330 Ω | 470K | 140 Ω | 100 Ω | NC | ↑ 2000 Ω | ↑ 285 Ω | | |
| V5 50C5 | 220 Ω | 470K | 100 Ω | 45 Ω | NC | ↑ 2000 Ω | ↑ 265 Ω | | |

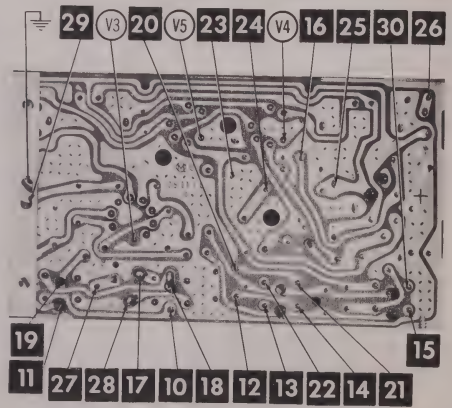
↑ MEASURED FROM OUTPUT OF M.I. MEASURED IN "AM" POSITION

NC NO CONNECTION

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE®

Howard W. Sams & Co. Inc. 1961

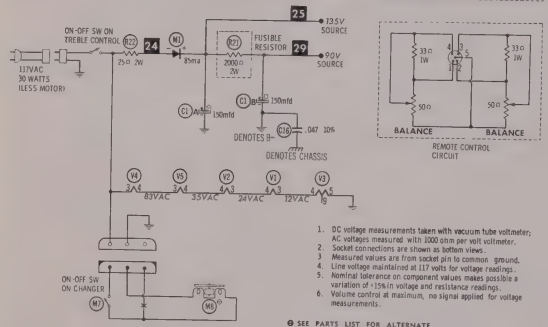



A Howard W. Sams CIRCUITRACE® Photo

PRINTED BOARD

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED




1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATIONS

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

**SILVERTONE MODELS 1053, 1055, 1056, (CH. 528.53970, 528.53980)**

# PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | USE | TYPE | ITEM No. | USE | TYPE |
|---|---|---|---|---|---|
| | • GENERAL ELECTRIC • | | RAYTHEON • | SYLVANIA • | |
| V1 | Converter | 12BE6 | V4 | Channel 1 Output | 35C5 |
| V2 | IF Amplifier | 12BA6 | V5 | Channel 2 Output | 50C5 |
| V3 | Channel 1 AF Amp. - Channel 2 AF Amp. | 12AX7 | | | |

## ELECTROLYTIC CAPACITORS

| ITEM No. | RATING CAP. | RATING VOLT. | REPLACEMENT DATA SILVERTONE PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | PYRAMID PART No. | SPRAGUE PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| C1A | ▲150 | 150 | 18-111-5 | | | | | | |
| B | ■150 | 150 | | | | | | | |
| C | 25 | 25 | | | | | | | |
| D | ▲25 | 25 | | | | | | | |

## FIXED CAPACITORS

**Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|
| C2 | 5000 | | BPD-005 | DD-502 | BYA10D5 | CCD-502 | B-250 | 5HK-D50 |
| C3 | .047 10% 400V | | V84C4S47 | | PM4S47 | 4DP-3-473 | | 4TM-S47 |
| C4 | .047 10% 400V | | V84C4S47 | | PM4S47 | 4DP-3-473 | | 4TM-S47 |
| C5 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C6 | .047 10% 400V | | V84C4S47 | | PM4S47 | 4DP-3-473 | | 4TM-S47 |
| C7 | 20000 1000V | | BPD-02 | | | | B-120 | 10TS-S20 |
| C8 | 20000 | | BPD-02 | DD-203 | BYB6S2 | CCD-203 | B-120 | 10TS-S20 |
| C9 | 20000 | | BPD-02 | DD-203 | BYB6S2 | CCD-203 | B-120 | 10TS-S20 |
| C10 | 2000 | | BPD-002 | DD-202 | BYA10D2 | CCD-202 | B-222 | 10TS-D20 |
| C11 | 330 | Note 1 | DI-330 | DD-331 | L10T33 | CCD-331 | B-333 | 10TS-T33 |
| C12 | 20000 | | BPD-02 | DD-203 | BYB6S2 | CCD-203 | B-120 | 10TS-S20 |
| C13 | 20000 | | BPD-02 | DD-203 | BYB6S2 | CCD-203 | B-120 | 10TS-S20 |
| C14 | 2000 | | BPD-002 | DD-203 | BYA10D2 | CCD-202 | B-222 | 10TS-D20 |
| C15 | 330 | Note 1 | DI-330 | DD-331 | L10T33 | CCD-331 | B-333 | 10TS-T33 |
| C16 | .047 10% 400V | | V84C4S47 | | PM4S47 | 4DP-3-473 | | 4TM-S47 |
| C17 | 4.7 10% | (Part of L1) | NPO-SI 4.7 | TCZ-4R7 | C10V47C | CCTO-4R7 | CNO-547 | 10TCC-V47 |

Note 1. Not used in Chassis 528.53970.

## CONTROLS

| ITEM No. | RATING RESISTANCE | RATING WATTS | REPLACEMENT DATA SILVERTONE PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | CTS-IRC PART No. | MALLORY PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| R1A | 2meg | 1/2 | 24-402① | BT-82 | | | | Loudness, Channel 1 |
| | 1meg Tap | | | | | | | |
| B | 2meg | 1/2 | | STR-82 | | | | Loudness, Channel 2 |
| | 1meg Tap | | | | | | | |
| R2A | 2meg | 1/2 | 24-409 ② | | | | FA26A | Balance, Channel 1 |
| B | 2meg | 1/2 | | | | | RU26R | Balance, Channel 2 |
| C | Shaft | | | | | | CS3500 | |
| R3A | 1meg | 1/2 | 24-407 ③ | B-70 | AD47-1meg-Z | | FA16A | Treble, Channel 1 |
| B | 1meg | 1/2 | | SR-70 | Not Req. | | RU16A | Treble, Channel 2 |
| C | Shaft | | | Not Req. | FS-3 | | CS3500 | |
| D | Switch | | | KR-1 | SWE-12 | | US41 | Power Off-On |
| R4A | 5meg | 1/2 | 24-404 ④ | | | | FD56R | Bass, Channel 1 |
| B | 5meg | 1/2 | | | | | RU56R | Bass, Channel 2 |
| C | Shaft | | | | | | CS3500 | |

① Chassis 528.53970 uses Part #24-400 (Less Taps).
② Chassis 528.53970 uses Part #24-408.
③ Chassis 528.53970 uses Part #24-406.
④ Not used in Chassis 528.53970.

## RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

| ITEM No. | RATING | REMARKS |
|---|---|---|
| R5 | 2.2meg | |
| R6 | 22K | |
| R7 | 150Ω | |
| R8 | 2.2meg | |
| R9 | 220K | |
| R10 | 22K | Note 1 |
| R11 | 10meg | |

| ITEM No. | RATING | REMARKS |
|---|---|---|
| R12 | 270K | |
| R13 | 470K | |
| R14 | 100Ω | |
| R15 | 120Ω | |
| R16 | 10meg | |
| R17 | 270K | |
| R18 | 470K | |

| ITEM No. | RATING | REMARKS |
|---|---|---|
| R19 | 100Ω | |
| R20 | 120Ω | |
| R21 | 2000Ω 2W | |
| R22 | 25Ω 2W | Pt. # 43-30-0 * |
| R23 | 220Ω | |

Note 1. Not used in Chassis 528.53970.
* Chassis 528.53980 may use Part #43-4-1.

## COILS (RF-IF)

| ITEM No. | USE | REPLACEMENT DATA SILVERTONE PART No. | Merit PART No. | Miller PART No. | Stancor PART No. | NOTES |
|---|---|---|---|---|---|---|
| L1 | Loopstick | 82-172-0 * | BC-419 | 705-A | | * Includes C17 |
| L2 | Osc. | 10-55-4 | | | | ①Chassis 528.53980 may use Part #80-116-2 |
| L3 | Input IF Trans. | 10-116-2 ① | BC-356 | 13-PC1 | RTC-8641 | |
| L4 | Output IF Trans. | 10-116-2 ① | BC-357 | 13-PC2 | RTC-8642 | |

# PARTS LIST AND DESCRIPTIONS (Continued)

## TRANSFORMER (AUDIO OUTPUT)

| ITEM No. | IMPEDANCE | | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. | SILVERTONE PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | |
| T1 | 2500Ω | 6-8Ω | 80-133-1 ① | | | | | ① Part #80-134-1 Used in Chassis 528.53970 |
| T2 | 2500Ω | 6-8Ω | 80-133-1 ① | | | | | |

## SPEAKER

| ITEM No. | TYPE | | | REPLACEMENT DATA | | NOTES |
|---|---|---|---|---|---|---|
| | SIZE | FIELD | V. C. IMP. | SILVERTONE PART No. | QUAM PART No. | |
| SP1 | 5"x 7" | PM | 6-8Ω | 33-457-4A ǂ | 57A1Z8 | ǂ Used in Models 1055, 1056 . Alternate Part #33-457-4 |
| SP2 | 5"x 7" | PM | 6-8Ω | 33-457-4A ǂ | 57A1Z8 | * Used in Model 1053 |
| | 5" | PM | | 33-458-4 * | | |

## COMPONENT COMBINATIONS

| ITEM No. | USE | DESCRIPTION | SILVERTONE PART No. | REPLACEMENT DATA |
|---|---|---|---|---|
| K1 | Diode Filter | 100mmf, 100mmf, 47K | 13-2-2 | Aerovox PA-97<br>Centralab PC-50<br>Cornell-Dubilier 111TM1<br>Sprague D-1 |
| K2 | Tone Comp. | 5000mmf, 5000mmf, 100K, 100K | 13-41-3 ① | |

① Not used in Chassis 528.53970.

## POWER RECTIFIERS

| ITEM No. | RATING | REPLACEMENT DATA | | | | NOTES |
|---|---|---|---|---|---|---|
| | CURRENT (Measured) | SILVERTONE PART No. | RCA PART No. | SARKES TARZIAN PART No. | SYLVANIA PART No. | |
| M1 | .085A | * | 1N1763 * | 2F4 * | SR200 * | * Silicon Type |

## SIGNAL DIODES

| ITEM No. | ORIG. TYPE | REPLACEMENT DATA | | | | NOTES |
|---|---|---|---|---|---|---|
| | | SILIVERTONE PART No. | GENERAL ELECTRIC PART No. | RAYTHEON PART No. | SYLVANIA PART No. | |
| M2 | 1N541 | | | 1N60 | 1N60 | Detector (Pigtail) |

## PHONO CARTRIDGE & NEEDLES

*NEEDLE LISTINGS SHOWN ARE FOR RESPECTIVE REPLACEMENT CARTRIDGES ONLY.

| ITEM No. | REPLACEMENT DATA | | | | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | SILVERTONE PART No. | | ASTATIC PART No. | | ELECTRO-VOICE PART No. | | SONOTONE PART No. | | |
| | CARTRIDGE | NEEDLE* | CARTRIDGE | NEEDLE* | CARTRIDGE | NEEDLE* | CARTRIDGE | NEEDLE* | |
| M3 | 33-319-0 | Not Req. | 13TB | Not Req. | 26S | S1-1 * & S3-3 * | 10T2-S | Not Req. | |

## MISCELLANEOUS

| ITEM No. | PART NAME | SILVERTONE PART No. | NOTES |
|---|---|---|---|
| M4 | Tuning Gang | 19-90-2 | 2 Gang, Chassis 528.53980 |
| | Tuning Gang | 19-92-2 | 2 Gang, Chassis 528.53970 |
| M5 | Switch | 69-327-0 | Radio-Phono (Rotary Wafer Type) Ch. 528.53980 |
| | Switch | 69-326-0 | Radio-Phono Chassis 528.53970 |

## MISCELLANEOUS (cont)

| ITEM No. | PART NAME | SILVERTONE PART No. | NOTES |
|---|---|---|---|
| M6 | Switch | 69-282-0 | Stereo-Monaural (Slide Type SPST) |
| M7 | Switch | 84-7838 | Off-On-Reject (Part of Changer) |
| M8 | Motor | 59-162 | Phono-Drive (Part of Changer) Ch. 528.57320 |
| | Motor | 59-158 | Phono-Drive (Part of Changer) Ch. 528.57321 |
| | Printed Board | 84-11364-0 | AM, Complete, Less Tubes, Ch. 528.53980 |
| | Printed Board | 84-11362-0 | AM, Complete, Less Tubes, Ch. 528.53970 |
| | Printed Board | 25-29-1 | AM, Board Only |
| | Printed Board | 84-11363-0 | Amplifier, Complete, Less Tubes, Ch. 528.53980 |
| | Printed Board | 84-11361-0 | Amplifier, Complete, Less Tubes, Ch. 528.53970 |
| | Printed Board | 25-27-1 | Amplifier, Board Only |

## CABINETS & CABINET PARTS

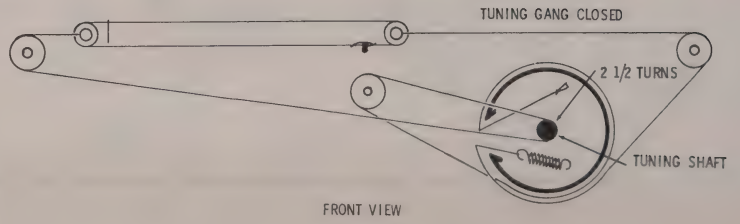
**(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)**

| NAME | PART NO. | DESCRIPTION |
|---|---|---|
| Dial Scale | 67-679-0 | Models 1055, 1056 |
| Dial Pointer | 52-241-1 | Models 1055, 1056 |
| Knob | 52-243-1 | Indicator, Model 1053 |
| Knob | 52-1399-0 | Tuning, Model 1053 |
| Knob | 52-1398-0 | Tuning, Models 1055, 1056 |
| Knob | 52-1387-0 | 5 Used, Models 1055, 1056 |
| Knob | 52-1391-0 | 4 Used, Model 1053 |
| Cabinet | 42-134-3 | Mahogany, Model 1055 |
| Cabinet | 42-135-3 | Limed Oak, Model 1056 |
| Cabinet | 42-136-3 | Model 1053 |
| Cabinet | 42-54-4 | Speaker, Mahogany, Model 1055 |
| Cabinet | 42-55-4 | Speaker, Limed Oak, Model 1056 |
| Cabinet | 42-56-4 | Speaker, Model 1053 |
| Handle | 49-517 | Model 1053 |

## WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors
Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting) ..... Use BELDEN No. 8401
Phono Pick-up Arm Cable ..... Use BELDEN No. 8430 (Two Conductor - Twisted)

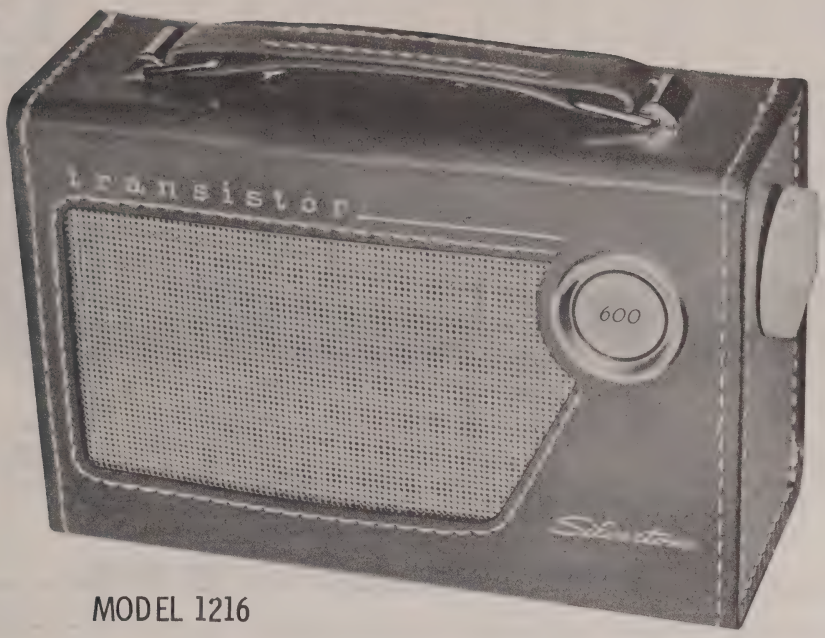
## DIAL CORD STRINGING



PHOTOFACT® Folder with CIRCUITRACE®

# SILVERTONE MODELS 1215, 1216 (CH. 528.53190)

SILVERTONE MODELS 1215, 1216 (CH. 528.53190)




MODEL 1216

SILVERTONE MODELS 1215, 1216 (CH. 528.53190)

| | |
|---|---|
| TRADE NAME | Silvertone Models 1215, 1216 (Ch. 528.53910) |
| SUPPLIER | Sears, Roebuck & Co., 925 S. Homan Ave., Chicago, Illinois |
| TYPE SET | Battery Operated Transistorized Portable AM Receiver |
| POWER SUPPLY | 9 Volts DC |
| RATING | 9MA @ 9 Volts DC (No Signal, Min. Volume) |
| | 20MA @ 9 Volts DC (Signal, Normal Volume) |
| TUNING RANGE—BROADCAST | 540 — 1600KC |

## ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools:
A1, A2, A3... GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8729, 8987, 8988, 8989
WALSCO #2515, 2531, 2532
A4, A6..... GENERAL CEMENT #5000, 5003, 8276, 8290
WALSCO #2512, 2515, 2522, 2523, 2525, 2537
A5..... GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545

| | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | OUTPUT METER | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| 1. | High side thru .1mfd to Base of Converter. Low side to chassis. | 455KC (400∿ Mod.) | Tuning gang fully open. | Across voice coil. | A1, A2, A3 | Adjust for maximum output. |
| 2. | " | 1610KC | " | " | A4 | " |
| 3. | " | 532KC | Tuning gang fully closed. | " | A5 | Adjust for maximum output. Repeat Steps 2 and 3. |
| 4. | Loop | 1400KC | 1400KC | " | A6 | Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output. |

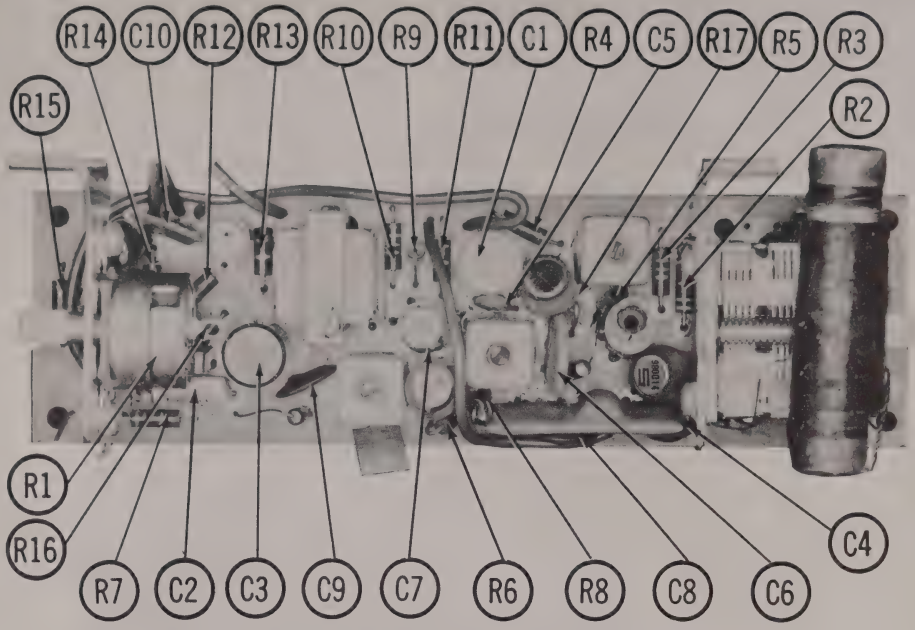
**HOWARD W. SAMS & CO., INC.** Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of KF397

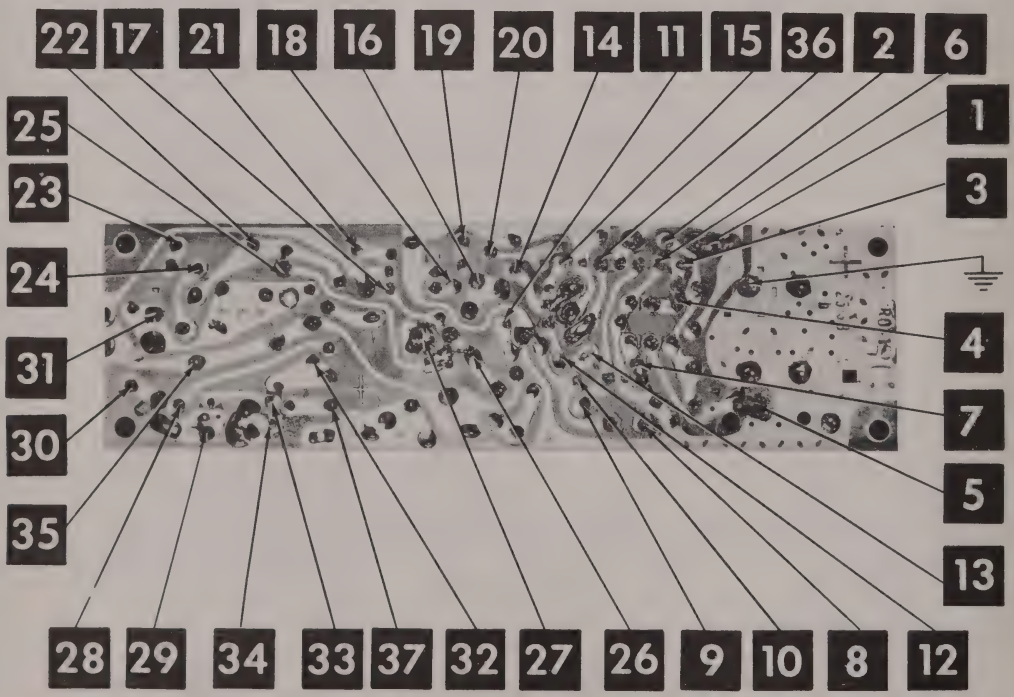
the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America



SET 518 FOLDER 12

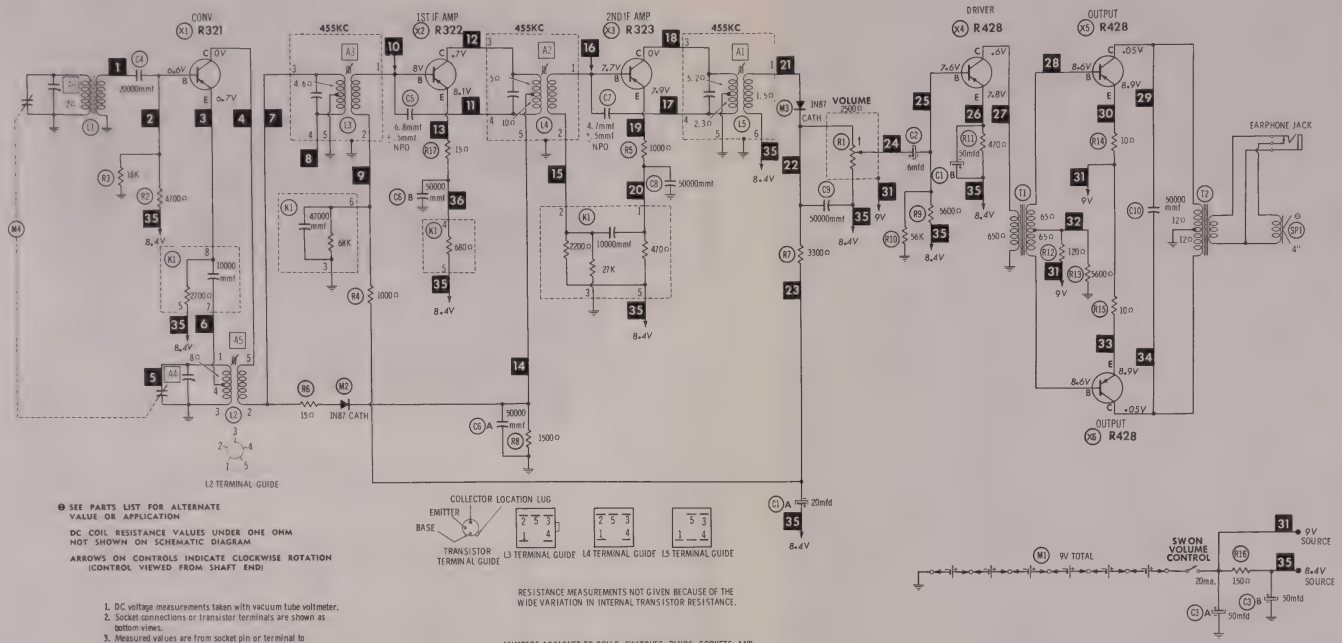



PRINTED BOARD-CAPACITOR & RESISTOR IDENT.




A Howard W. Sams CIRCUITRACE® Photo

PRINTED BOARD




Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections or transistor terminals are shown as bottom views.
3. Measured values are from socket pin or terminal to common ground.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE®
©Howard W. Sams & Co., Inc. 1961

**SILVERTONE MODELS 1215, 1216 (CH. 528.53190)**

# PARTS LIST AND DESCRIPTIONS

## TRANSISTORS

| ITEM No. | ORIG. TYPE | USE | REPLACEMENT DATA | | | NOTES |
|---|---|---|---|---|---|---|
| | | | RCA PART No. | RAYTHEON PART No. | SYLVANIA PART No. | |
| X1 | R321 * | Converter | | 2N486 | | PNP |
| X2 | R322 * | 1st IF Amplifier | | 2N483 | | PNP |
| X3 | R323 * | 2nd IF Amplifier | | 2N483 | | PNP |
| X4 | R428 * | Driver | 2N408 | 2N362 | | PNP |
| X5 | R428 * | Output | | 2N633 | | PNP |
| X6 | R428 * | Output | | 2N633 | | PNP |

* Transistor Type May Vary. Replace With Original Type.

## ELECTROLYTIC CAPACITORS

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | CAP. | VOLT. | SILVERTONE PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | PYRAMID PART No. | SPRAGUE PART No. | |
| C1A | 20 | 10 | 18-105-5 | | ECPAP2 | PET2365C | | VLS-2248 * | |
| B | 50 | 10 | | | | | | | |
| C2 | 6 | 15 | 18-84-5 | XPP-15006 | NLW6-15 | TT25X6 | MLV10-15 | TE-1153 | |
| C3A | 50 | 10 | 18-113-5 | BCD-10X5050 | ECPAN5 | PET2370 | | VL-2250 | |
| B | 50 | 10 | | | | | | | |

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

## FIXED CAPACITORS

**Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
| C4 | 20000 30V | | C80V203AM | DA-203 | H-05S2 | CCD-203 | TA-120 | TG-S20 |
| C5 | 6.8 ± .5mmf NPO | | NPO-D1 6.8 | DTZ-6R8 | C10V68C | | CNO-568 | 10TCC-V68 |
| C6A | 50000 30V | | C80V503AM | DA-503 | H-05S5 | | TA-150 | TG-S50 |
| B | 50000 30V | | C80V503AM | DA-503 | H-05S5 | | TA-150 | TG-S50 |
| C7 | 4.7 ± .5mmf NPO | | NPO-D1 4.7 | DTZ-4R7 | C10V47C | CCTO-4R7 | CNO-547 | 10TCC-V47 |
| C8 | 50000 30V | | C80V503AM | DA-503 | H-05S5 | | TA-150 | TG-S50 |
| C9 | 50000 30V | | C80V503AM | DA-503 | H-05S5 | | TA-150 | TG-S50 |
| C10 | 50000 30V | | C80V503AM | DA-503 | H-05S5 | | TA-150 | TG-S50 |

## CONTROLS

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| | RESISTANCE | WATTS | SILVERTONE PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | CTS-IRC PART No. | MALLORY PART No. | |
| R1 | 2500Ω | 1/2 | 24-378-0 | | | | | Volume & Switch |

## RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

| ITEM No. | RATING | REMARKS |
|---|---|---|
| R2 | 4700Ω | |
| R3 | 18K | |
| R4 | 1000Ω | |
| R5 | 1000Ω | |
| R6 | 15Ω | |
| R7 | 3300Ω | |

| ITEM No. | RATING | REMARKS |
|---|---|---|
| R8 | 1500Ω | |
| R9 | 5600Ω | |
| R10 | 56K | |
| R11 | 470Ω | |
| R12 | 120Ω | |
| R13 | 5600Ω | |

| ITEM No. | RATING | REMARKS |
|---|---|---|
| R14 | 10Ω | |
| R15 | 10Ω | |
| R16 | 150Ω | |
| R17 | 15Ω | |

## COMPONENT COMBINATIONS

| ITEM No. | USE | DESCRIPTION | SILVERTONE PART No. | REPLACEMENT DATA |
|---|---|---|---|---|
| K1 | Converter - IF Bias | 10000mmf, 10000mmf, 47000mmf, 470Ω, 680Ω, 2200Ω, 2700Ω, 27K, 68K | 13-34-3 | Centralab PC400 |

## COILS (RF-IF)

| ITEM No. | USE | REPLACEMENT DATA | | | | NOTES |
|---|---|---|---|---|---|---|
| | | SILVERTONE PART No. | Merit PART No. | Miller PART No. | Stancor PART No. | |
| L1 | Loopstick | 82-168-0 | | | | |
| L2 | Osc. | 10-53-4 | | | | |
| L3 | 1st IF Trans. | 10-131-2 | | | | |
| L4 | 2nd IF Trans. | 10-124-2 | | | | |
| L5 | 3rd IF Trans. | 10-137-2 | | | | |

## TRANSFORMER (DRIVER)

| ITEM No. | TURNS RATIO | | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. | SILVERTONE PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | |
| T1 | 2.5 | 1 | 80-102-1D | | | | | |

# PARTS LIST AND DESCRIPTIONS (Continued)

## TRANSFORMER (AUDIO OUTPUT)

| ITEM No. | IMPEDANCE | | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. | SILVERTONE PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | |
| T2 | 350Ω CT | 3-4Ω | 80-101-1 | | | | | |

## SPEAKER

| ITEM No. | TYPE | | | REPLACEMENT DATA | | NOTES |
|---|---|---|---|---|---|---|
| | SIZE | FIELD | V. C. IMP. | SILVERTONE PART No. | QUAM PART No. | |
| SP1 | 4" | PM | 3-4Ω | 33-449-4A ‡ | 4A05 | ‡ Includes T2. Alternate Part #33-449-4. |

## BATTERIES

| ITEM No. | VOLTAGE | SILVERTONE PART No. | REPLACEMENT DATA | | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | | | BURGESS | | EVEREADY | | MALLORY | | |
| | | | "A" | "B" | "A" | "B" | "A" | "B" | |
| M1 | 1½V | 6446 * | | 130 * | | 635 * | | M-14R* | * 6 Required |

## SIGNAL DIODES

| ITEM No. | ORIG. TYPE | REPLACEMENT DATA | | | | NOTES |
|---|---|---|---|---|---|---|
| | | SILVERTONE PART No. | GENERAL ELECTRIC PART No. | RAYTHEON PART No. | SYLVANIA PART No. | |
| M2 | 1N87 | | | 1N87 | 1N87 | Overload & AVC (Pigtail) |
| M3 | 1N87 | | | 1N87 | 1N87 | Detector (Pigtail) |

## MISCELLANEOUS

| ITEM No. | PART NAME | SILVERTONE PART No. | NOTES |
|---|---|---|---|
| M4 | Tuning Cap. | 19-89-2 | 2 Gang |
| | Printed Board | 84-9301-0 | Complete, Includes Transistors |
| | Printed Board | 25-33-1 | Less Transistors & Components |
| | Earphone | 6500 | |

## CABINETS & CABINET PARTS

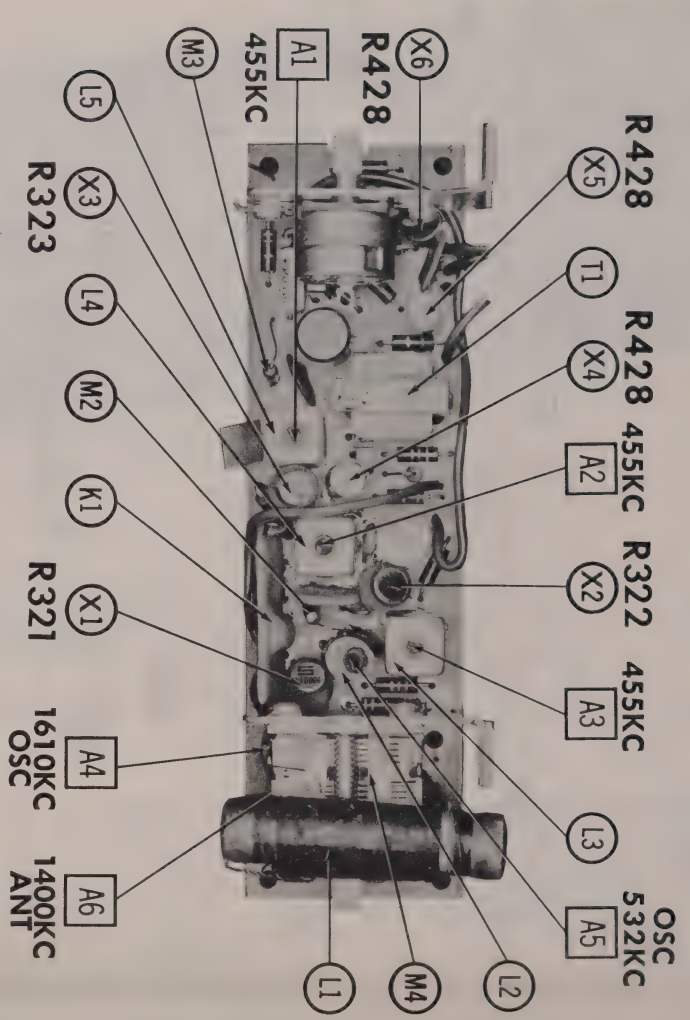
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

| NAME | PART NO. | DESCRIPTION |
|---|---|---|
| Knob | 52-1339-0 | Tuning |
| Knob | 52-1337-0 | Volume |
| Cabinet | 42-113-1 | Brown, Model 1215 |
| Cabinet | 42-114-1 | Gray, Model 1216 |
| Handle | 49-713 | Model 1215 |
| Handle | 49-714 | Model 1216 |

## WIRING DATA

General-use Unshielded Hook-up Wire .....Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

## CHASSIS—TOP VIEW



PHOTOFACT® Folder with CIRCUITRACE®

# STEELMAN MODELS 604, 704

STEELMAN MODELS
604, 704

MODEL 704

STEELMAN MODELS
604, 704

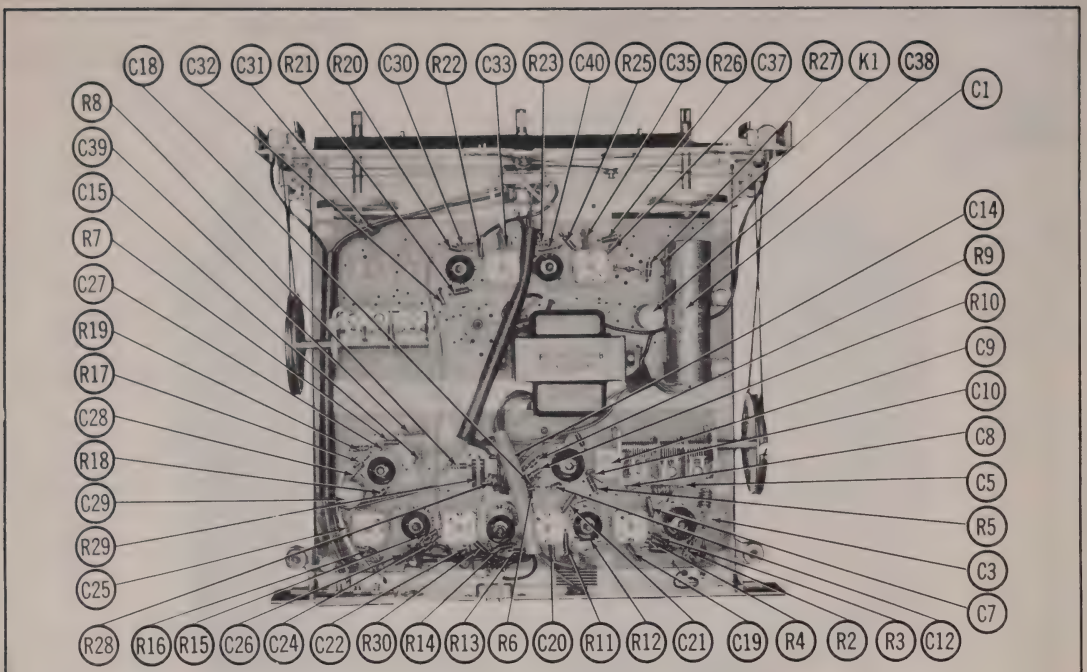
| | | | |
|---|---|---|---|
| TRADE NAME | Steelman Models 604, 704 | | |
| MANUFACTURER | Steelman Phono & Radio Co., 2-30 Anderson Ave., Mount Vernon, N. Y. | | |
| TYPE SET | AC Operated 8 Tube FM-AM Tuner, 7 Tube Stereo Amplifier, And 4 Speed Automatic Record Changer | | |
| POWER SUPPLY | 110 - 120 Volts AC, 60 Cycles | RATING | 38 Watts, .37 Amp. @117 Volts AC (Tuner)<br>92 Watts, .86 Amp. @117 Volts AC (Amp.) |
| TUNING RANGE—BROADCAST | 540 — 1600KC | FREQ. MOD. | 88 — 108MC |

FOR SERVICE INFORMATION ON RECORD CHANGER PART #300070 — SEE V-M 1201 — PHOTOFACT SET 436 FOLDER 18 OR RECORD CHANGER MANUAL RC-12

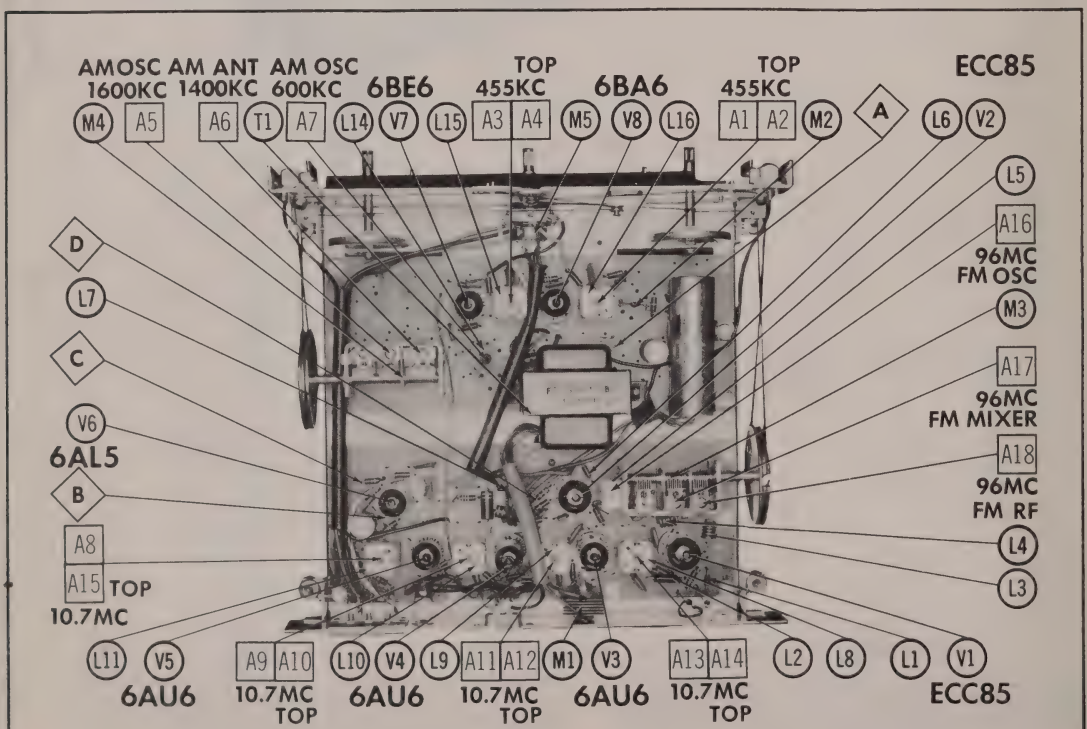
**HOWARD W. SAMS & CO., INC.** Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

KN130




TUNER CHASSIS - TOP VIEW




TUNER CHASSIS - TOP VIEW

# ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use only enough generator output to provide a usable indication.
Suggested Alignment Tools: A1 thru A4 and A8 thru A15...GENERAL CEMENT #5097, 8727
WALSCO #2515
A5, A6, A16, A17 and A18..... GENERAL CEMENT #5004, 5008, 5009
WALSCO #2520
A7..... GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545

AM ALIGNMENT—SELECTOR IN AM POSITION

| | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | CONNECT VTVM | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| 1. | High side thru .1mfd to pin 7 (grid) of AM Converter. Low side to chassis. | 455KC (400~ Mod.) | (AM) Tuning gang fully open. | AC probe to point (A). Common to chassis. | A1, A2, A3, A4 | Adjust for maximum deflection. |
| 2. | Loop | 1600KC | 1600KC | " | A5 | Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output. |
| 3. | " | 1400KC | 1400KC Signal. | " | A6 | " |
| 4. | " | 600KC | 600KC Signal. | " | A7 | Adjust for maximum deflection. Repeat Steps 2, 3 and 4. |

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM—SELECTOR IN FM POSITION

| | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | CONNECT VTVM | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| 5. | High side thru .001mfd to pin 7 (grid) of FM Mixer. Low side to chassis. | 10.7MC (Unmod.) | (FM) Point of non-interference. | DC probe thru 1meg to point (B). Common to chassis. | A8, A9, A10, A11, A12, A13, A14 | Adjust for maximum deflection. |
| 6. | " | " | " | DC probe to point (C). Common to chassis. | A15 | Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting. |

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE—SELECTOR IN FM POSITION

Use frequency modulated signal with 60~ modulation and 450KC sweep. Use 120~ sawtooth voltage in scope for horizontal deflection.

| | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | CONNECT SCOPE | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| 5. | High side thru .001mfd to pin 7 (grid) of FM Mixer. Low side to chassis. | 10.7MC (450KC Swp) | (FM) Point of non-interference. | Vert. Amp. thru 27K to point (B). Low side to chassis. | A8, A9, A10, A11, A12, A13, A14 | Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown. |
| 6. | " | " | " | Vert. amp. to point (C). Low side to chassis. | A15 | Adjust to place marker at the center of crossover lines similar to Fig. 2. SLIGHTLY retouch A8 for maximum amplitude and straightness of cross-over lines. |

FM RF ALIGNMENT—SELECTOR IN FM POSITION

Short Point D to chassis to disable the A.F.C.

| | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | CONNECT VTVM | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| 7. | High side thru 270Ω to FM antenna terminals. Low side to chassis. | 96MC (Unmod.) | (FM) 96MC | DC probe thru 1meg to point (B). Common to chassis. | A16, A17, A18 | Adjust for maximum output. |

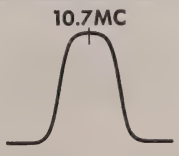



FIG. 1

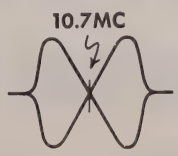
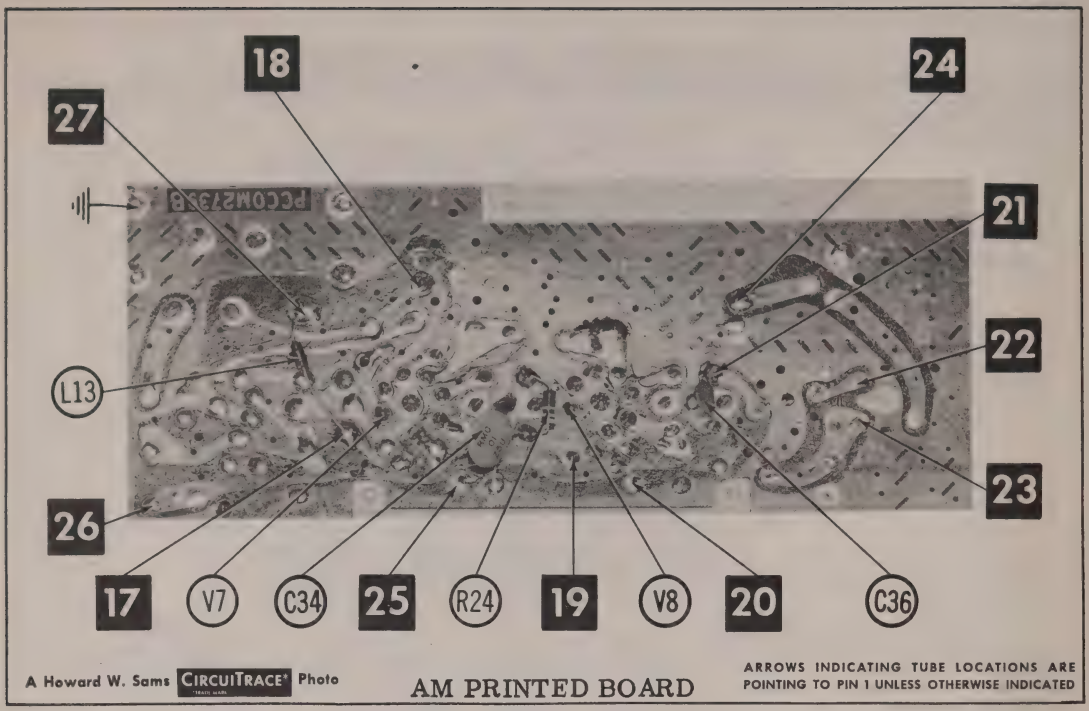


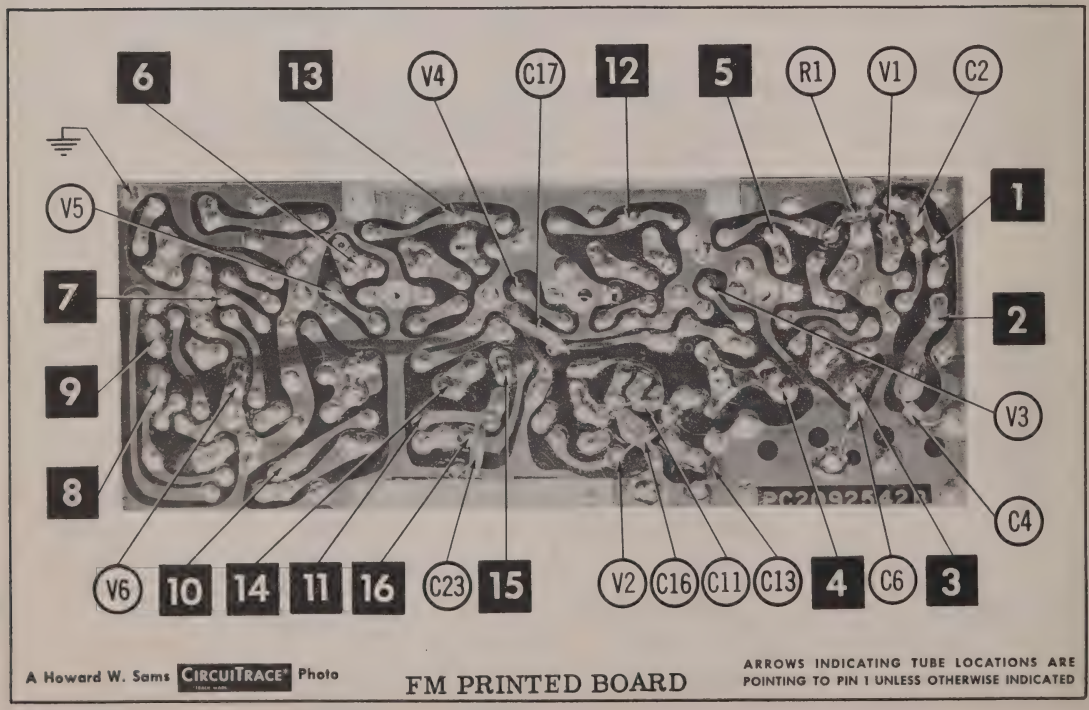

FIG. 2




A Howard W. Sams CIRCUITRACE® Photo

AM PRINTED BOARD

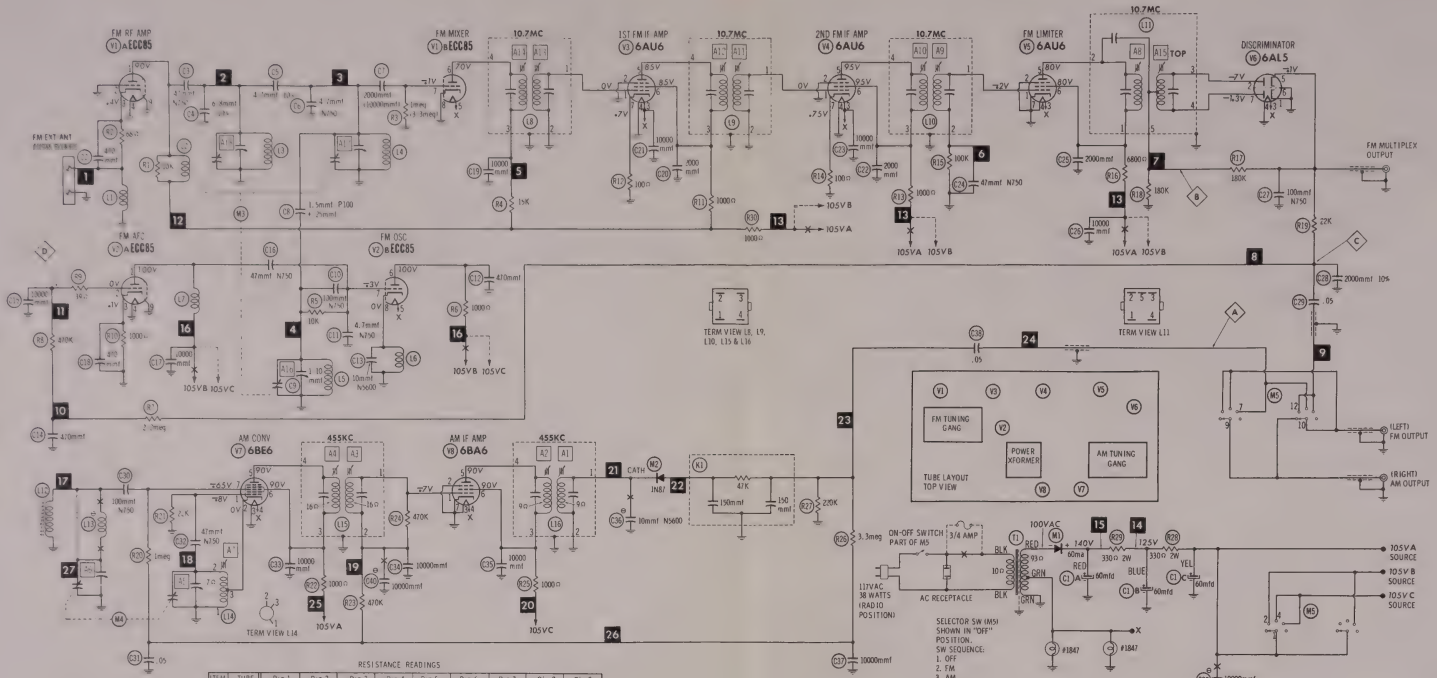
ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED




A Howard W. Sams CIRCUITRACE® Photo

FM PRINTED BOARD

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED




RESISTANCE READINGS

| ITEM | TUBE | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| V1 | ECC85 6AQ8 | ††3660Ω | 0Ω | 68Ω | 0Ω | .1Ω | ††16K | 1meg | 0Ω | 0Ω |
| V2 | ECC85 6AQ8 | ††660Ω | 3meg | 1000Ω | 0Ω | .1Ω | ††1660Ω | 10K | 0Ω | 0Ω |
| V3 | 6AU6 | 0Ω | 0Ω | .1Ω | 0Ω | ††2600Ω | ††2600Ω | 100Ω | | |
| V4 | 6AU6 | 0Ω | 0Ω | .1Ω | 0Ω | ††1600Ω | ††1600Ω | 100Ω | | |
| V5 | 6AU6 | 100K | 0Ω | .1Ω | 0Ω | ††7400Ω | ††7400Ω | 0Ω | | |
| V6 | 6AL5 | 0Ω | 180K | 1Ω | 0Ω | 360K | 0Ω | 180K | | |
| V7 | 6BE6 | 22K | 2Ω | 0Ω | .1Ω | ††1660Ω | ††1660Ω | 4.3meg | | |
| V8 | 6BA6 | 3.9meg | 0Ω | 0Ω | 1Ω | ††1660Ω | ††1660Ω | 0Ω | | |

ALL MEASUREMENTS MADE IN "STEREO" POSITION.
†† MEASURED FROM OUTPUT OF M1.
NC NO CONNECTION
TP TIE POINT

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. No signal applied for voltage measurements.

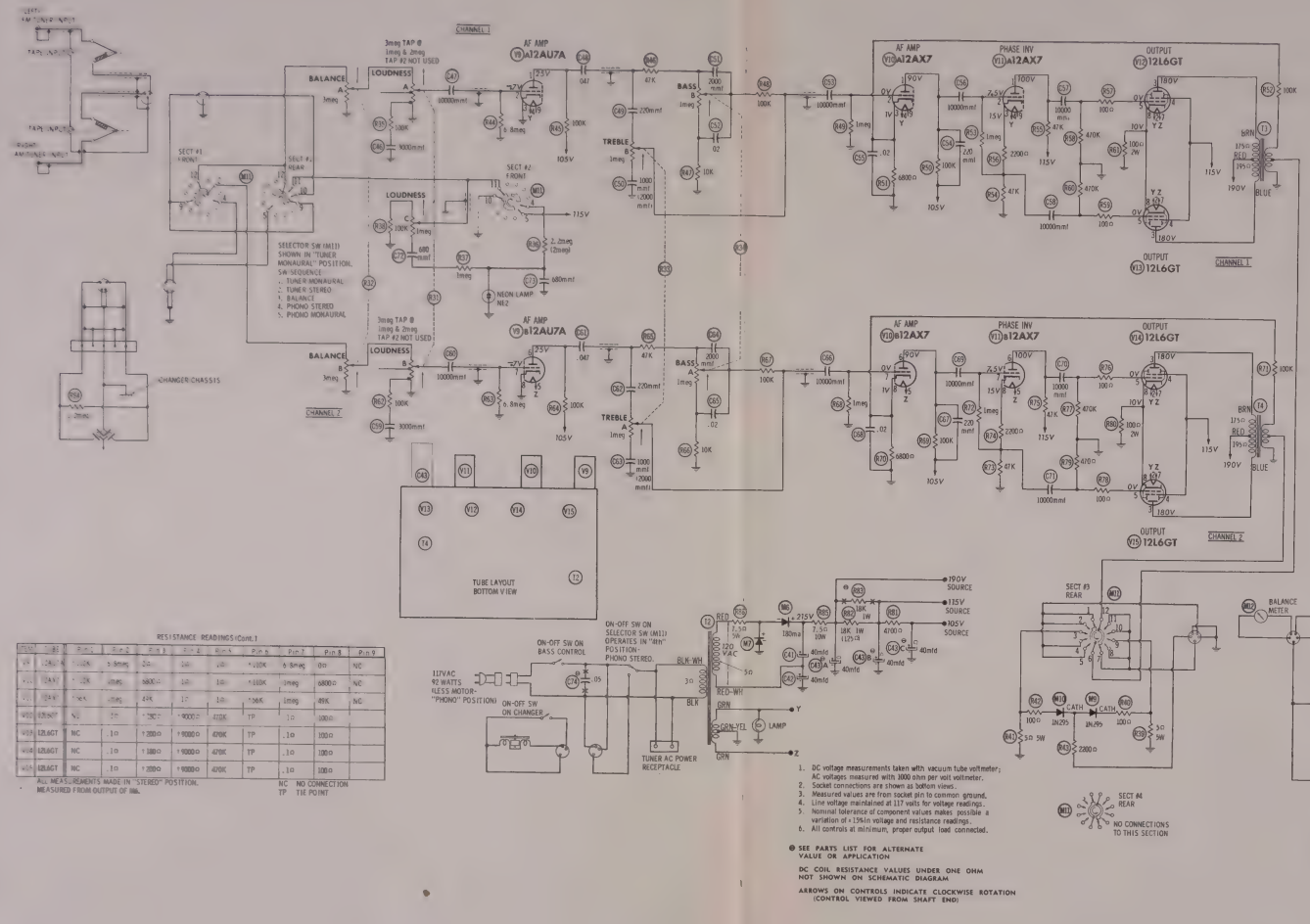
NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE
©Howard W. Sams & Co., Inc. 1961

STEELMAN MODELS 604, 704




RESISTANCE READINGS (Cont.)

| ITEM | TUBE | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| V9 | 12AU7A | 1.5meg | 2Ω | 0Ω | 2Ω | 1Ω | 470K | 6.8meg | 0Ω | N/C |
| V10 | 12AX7 | 1.2M | 68Ω | 680Ω | 1Ω | 1Ω | 470K | 1meg | 680Ω | N/C |
| V11 | 12AX7 | 1.2M | 1meg | 69K | 1Ω | 1Ω | 470K | 1meg | 69K | N/C |
| V12 | 12L6GT | N/C | 2Ω | 230Ω | 9000Ω | 470K | TP | 1Ω | 100Ω | |
| V13 | 12L6GT | N/C | .1Ω | 230Ω | 9000Ω | 470K | TP | .1Ω | 100Ω | |
| V14 | 12L6GT | N/C | .1Ω | 180Ω | 9000Ω | 470K | TP | .1Ω | 100Ω | |
| V15 | 12L6GT | N/C | .1Ω | 230Ω | 9000Ω | 470K | TP | .1Ω | 100Ω | |

ALL MEASUREMENTS MADE IN "STEREO" POSITION. MEASURED FROM OUTPUT OF 3ML.

NC NO CONNECTION
TP TIE POINT

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

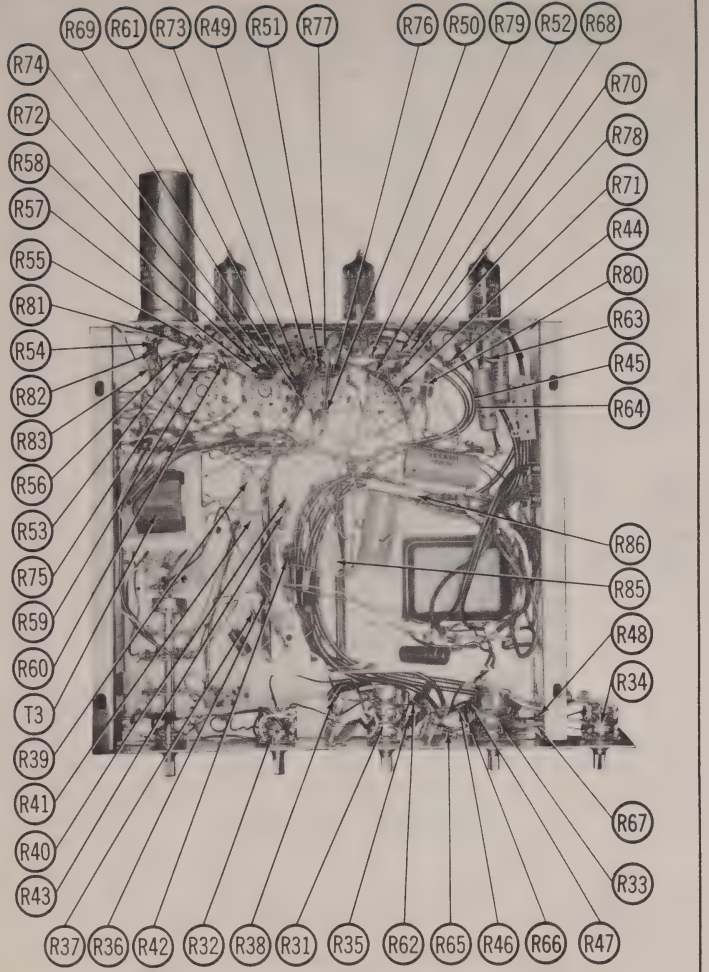
● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

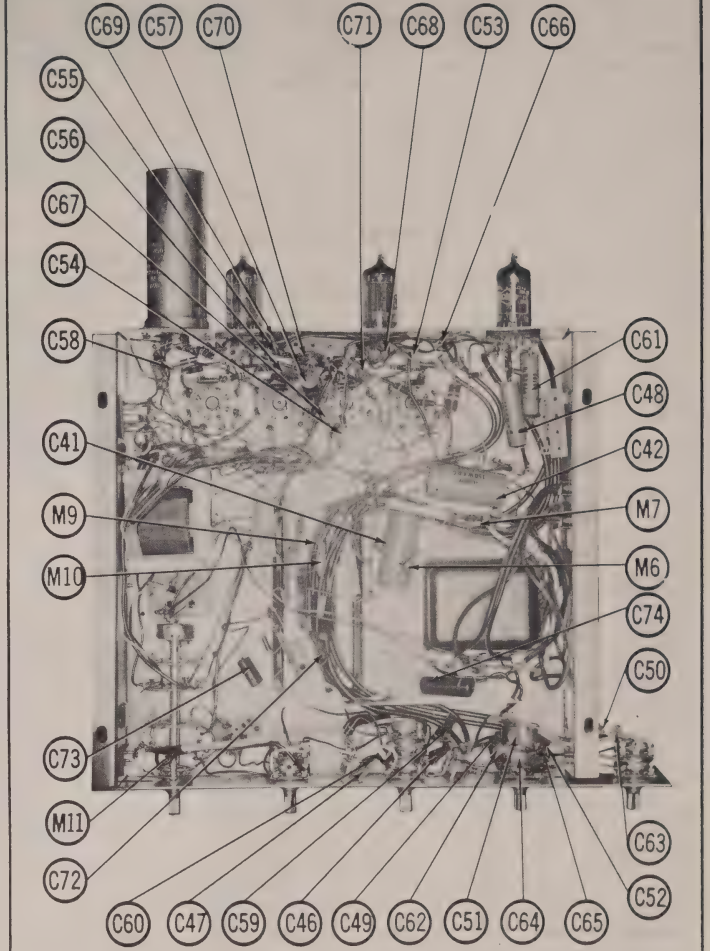
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1961

**STEELMAN MODELS 604, 704**




AMP CHASSIS BOTTOM VIEW - RESISTOR IDENT.




AMP CHASSIS - BOTTOM VIEW
CAPACITOR AND MISC. IDENT.

# TUNER PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | USE | TYPE (GENERAL ELECTRIC • RAYTHEON • SYLVANIA •) |
|---|---|---|
| V1 | FM RF Amp. -Mixer | ECC85/6AQ8 |
| V2 | FM Osc. -AFC | ECC85/6AQ8 |
| V3 | 1st FM IF Amplifier | 6AU6 |
| V4 | 2nd FM IF Amplifier | 6AU6 |
| V5 | FM Limiter | 6AU6 |
| V6 | Discriminator | 6AL5 |
| V7 | AM Converter | 6BE6 |
| V8 | AM IF Amplifier | 6BA6 |

## ELECTROLYTIC CAPACITORS

| ITEM No. | RATING CAP. | RATING VOLT. | REPLACEMENT DATA STEELMAN PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | PYRAMID PART No. | SPRAGUE PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| C1A | 60 | 200 | | PR3-020 | BBRQ5515C | WT458 | | TVAS-3567 * | |
| B | 60 | 200 | | | | | | | |
| C | 60 | 200 | | | | | | | |

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

## FIXED CAPACITORS

**Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|
| C2 | 470 | | BPD-00047 | DD-471 | BYA10T47 | CCD-471 | B-347 | 10TS-T47 |
| C3 | 47 N750 | | N750-DI 47 | DTN-47 | C10Q47U | CCTN-470 | CN7-447 | 10TCU-Q47 |
| C4 | 6.8 10% | | NPO-SI 6.8 | TCZ-6R8 | C10V68C | CCTO-6R8 | CNO-568 | 10TCC-V68 |
| C5 | 4.7 10% | | NPO-SI 4.7 | TCZ-4R7 | C10V47C | CCTO-4R7 | CNO-547 | 10TCC-V47 |
| C6 | 4.7 N750 | | | DTN-5 | C10V5U | CCTN-050 | CN7-547 | 10TCU-V50 |
| C7 | 2000 | (10000) † | BPD-002 | DD-202 | BYA10D2 | CCD-202 | B-220 | 5HK-D20 |
| C8 | 1.5 P100 ± .25mmf | | | | | | | |
| C9 | 1-10 | | | 829-10 | | | | |
| C10 | 100 N750 | | N750-DI 100 | DTN-100 | C10T1U | CCTN-101 | CN7-310 | 10TCU-T10 |
| C11 | 4.7 N750 | | | DTN-5 | C10V5U | CCTN-4R7 | CN7-547 | 10TCU-V5 |
| C12 | 470 | | BPD-00047 | DD-471 | BYA10T47 | CCD-471 | B-347 | 10TS-T47 |
| C13 | 10 N5600 | | | | | * | | |
| C14 | 470 | | BPD-00047 | DD-471 | BYA10T47 | CCD-471 | B-347 | 10TS-T47 |
| C15 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C16 | 47 N750 | | N750-DI 47 | DTN-47 | C10Q47U | CCTN-470 | CN7-447 | 10TCU-Q47 |
| C17 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C18 | 470 | | BPD-00047 | DD-471 | BYA10T47 | CCD-471 | B-347 | 10TS-T47 |
| C19 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C20 | 2000 | | BPD-002 | DD-202 | BYA10D2 | CCD-202 | B-220 | 5HK-D20 |
| C21 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C22 | 2000 | | BPD-002 | DD-202 | BYA10D2 | CCD-202 | B-220 | 5HK-D20 |
| C23 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C24 | 47 N750 | | N750-DI 47 | DTN-47 | C10Q47U | CCTN-470 | CN7-447 | 10TCU-Q47 |
| C25 | 2000 | | BPD-002 | DD-202 | BYA10D2 | CCD-202 | B-220 | 5HK-D20 |
| C26 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C27 | 100 N750 | | N750-DI 100 | DTN-100 | C10T1U | CCTN-101 | CN7-310 | 10TCU-T10 |
| C28 | 2000 10% | | DI-2000 | | 5R5D2 | CCD-202 | JL-220 | 10TS-D20 |
| C29 | .05 200V | | P2151N-047 | DD-503 | BC2S47J | 4DP-3-503 | ACE6147 | 2SE-S47 |
| C30 | 100 N750 | | N750-DI 100 | DTN-100 | C10T1U | CCTN-101 | CN7-310 | 10TCU-T10 |
| C31 | .05 400V | | P488N-05 | DD-503 | CUB4S5 | 4DP-3-503 | GEM-415 | 4TM-S50 |
| C32 | 47 N750 | | N750-DI 47 | DTN-47 | C10Q47U | CCTN-470 | CN7-447 | 10TCU-Q47 |
| C33 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C34 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C35 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C36 | 10 N5600 | Note 1 | | | | * | | |
| C37 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C38 | .05 200V | | P2151N-05 | DD-503 | BC2S47J | 4DP-3-503 | ACE6147 | 2SE-S47 |
| C39 | 10000 | Note 1 | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C40 | 10000 | Note 1 | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |

Note 1. Not used in some versions.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
† Alternate Value.

## RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

| ITEM No. | RATING | REMARKS |
|---|---|---|
| R1 | 10K | |
| R2 | 68Ω | |
| R3 | 1meg | (3.3meg) * |
| R4 | 15K | |
| R5 | 10K | |
| R6 | 1000Ω | |
| R7 | 2.2meg | |
| R8 | 470K | |
| R9 | 39Ω | |
| R10 | 1000Ω | |

| ITEM No. | RATING | REMARKS |
|---|---|---|
| R11 | 1000Ω | |
| R12 | 100Ω | |
| R13 | 1000Ω | |
| R14 | 100Ω | |
| R15 | 100K | |
| R16 | 6800Ω | |
| R17 | 180K | |
| R18 | 180K | |
| R19 | 22K | |
| R20 | 1meg | |

| ITEM No. | RATING | REMARKS |
|---|---|---|
| R21 | 22K | |
| R22 | 1000Ω | |
| R23 | 470K | |
| R24 | 470K | |
| R25 | 1000Ω | |
| R26 | 3.3meg | |
| R27 | 220K | |
| R28 | 330Ω 2W | |
| R29 | 330Ω 2W | |
| R30 | 1000Ω | |

* Alternate Value.

## COMPONENT COMBINATIONS

| ITEM No. | USE | DESCRIPTION | STEELMAN PART No. | REPLACEMENT DATA | |
|---|---|---|---|---|---|
| K1 | AM Diode RF Filter | 150mmf, 150mmf, 47K | | Aerovox | PA-98 |
| | | | | Centralab | PC-51 |
| | | | | Cornell-Dubilier | 1IITM2 |
| | | | | Sprague | D-2 |

## COILS (RF-IF)

| ITEM No. | USE | REPLACEMENT DATA STEELMAN PART No. | Merit PART No. | Miller PART No. | Stancor PART No. | NOTES |
|---|---|---|---|---|---|---|
| L1 | FM Ant. Coil | | | 4584 | RTC-8512 | .24uh |
| L2 | RF Choke | | BC-564 | 4608 | RTC-8518 | 3.3uh |
| L3 | FM RF Coil | | | | | |
| L4 | FM Mixer Coil | | | | | |
| L5 | FM Osc. Coil | | | | | |
| L6 | Cathode Choke | | BC-561 | 4602 | RTC-8515 | 1uh |
| L7 | RF Choke | | BC-564 | 4608 | RTC-8518 | 3.3uh |
| L8 | 1st FM IF Trans. | | FM-256 | 1463-PC | RTC-9046 | |
| L9 | 2nd FM IF Trans. | | FM-256 | 1463-PC | RTC-9046 | |
| L10 | 3rd FM IF Trans. | | FM-256 | 1463-PC | RTC-9046 | |
| L11 | Discriminator | | | | | |
| L12 | Loopstick | | BC-419 | 705-A | | |
| L13 | RF Choke | Note 1 | | 4584 | RTC-8512 | .24uh |
| L14 | AM Osc. Coil | | | | | |
| L15 | 1st AM IF Trans. | | BC-356 | 13-PC1 | RTC-8641 | |
| L16 | 2nd AM IF Trans. | | BC-357 | 13-PC2 | RTC-8642 | |

Note 1. Not used in some versions.

## TRANSFORMER (POWER)

| ITEM No. | RATING PRI. | RATING SEC. 1 | REPLACEMENT DATA STEELMAN PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|
| T1 | 117V@ .37A | 120V @ .860A Tap@6.3V@ 2.6A | | | | | | |

## RECTIFIERS

| ITEM No. | RATING CURRENT (Measured) | REPLACEMENT DATA STEELMAN PART No. | GENERAL ELECTRIC PART No. | RCA PART No. | SARKES TARZIAN PART No. | SYLVANIA PART No. | NOTES |
|---|---|---|---|---|---|---|---|
| M1 | .060A | * | | 1N1763 ♦ | 75A * | SR200 ♦ | * Selenium Type<br>♦ Silicon Type |

# TUNER PARTS LIST AND DESCRIPTIONS (Continued)

## CRYSTAL DIODES

| ITEM No. | ORIG. TYPE | REPLACEMENT DATA | | | NOTES |
|---|---|---|---|---|---|
| | | STEELMAN PART No. | RAYTHEON PART No. | SYLVANIA PART No. | |
| M2 | 1N87 | Z2923361 | 1N87 | 1N87 | AM Detector (Pigtail) |

## MISCELLANEOUS

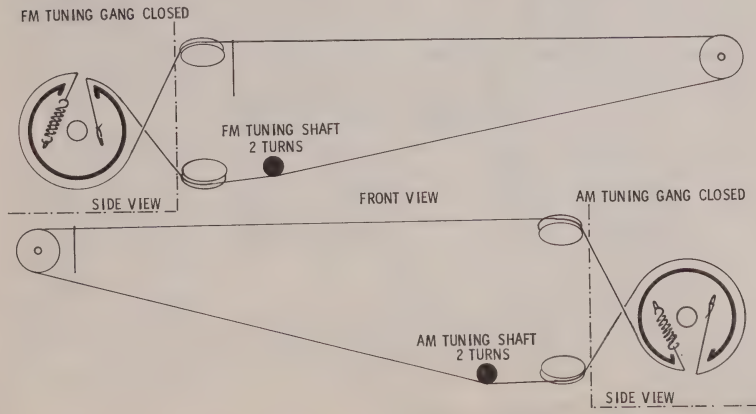
| ITEM No. | PART NAME | STEELMAN PART No. | NOTES |
|---|---|---|---|
| M3 | Tuning Cap. | | FM, 3 Gang |
| M4 | Tuning Cap. | | AM, 3 Gang |
| M5 | Switch | | Function Selector (Includes Power Off-On) (Rotary Type) |

## WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

## TUNING DRIVE CORD STRINGING




# AMP PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | USE | TYPE |
|---|---|---|
| V9 | Channel 1 AF Amp. - Channel 2 AF Amp. | 12AU7A |
| V10 | Channel 1 AF Amp. - Channel 2 AF Amp. | 12AX7 |
| V11 | Channel 1 Phase Inv. - Channel 2 Phase Inv. | 12AX7 |
| V12 | Channel 1 Output | 12L6GT |
| V13 | Channel 1 Output | 12L6GT |
| V14 | Channel 2 Output | 12L6GT |
| V15 | Channel 2 Output | 12L6GT |

## ELECTROLYTIC CAPACITORS

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | CAP. | VOLT. | STEELMAN PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | PYRAMID PART No. | SPRAGUE PART No. | |
| C41 | 40 | 150 | 581004 | PRS1470 | BR4015 | TC48 | TD-40-150 | TVA-1413 | |
| C42 | 40 | 150 | 581004 | PRS1470 | BR4015 | TC48 | TD-40-150 | TVA-1413 | |
| C43A | ▲40 | 450 | 583026 ① | AFH3-44 | C0350 | FP377 | TMT-3748 | TVL-3787 | ① |
| B | ▲40 | 450 | | | | | | | |
| C | ■40 | 450 | | | | | | TVANS-1440 * | |
| C44 | 50 | 50NP | 581048 | PRS7450 | BR5015 | TC3501 † | | TVANS-1440 * | |
| C45 | 50 | 50NP | 581048 | PRS7450 | BR5015 | TC3501 † | | | |

① C43 may be a 350V unit (Part #582014).
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
† Use 2 units. Connect negative terminals together. Connect positive terminals into circuit the same as the original non-polarized unit.

## FIXED CAPACITORS

**Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
| C46 | 3000 | | SI 3000 | D6-302 | BYA10D3 | CCD-302 | GP230 | 10TS-D30 |
| C47 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C48 | .047 400V | | P488N-047 | DD-503 | CUB4S47 | 4DP-3-473 | GEM-4147 | 4TM-S47 |
| C49 | 220 | | DI-220 | DD-221 | L10T22 | CCD-221 | B-322 | 10TS-T22 |
| C50 | 1000 | (2000) † | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C51 | 2000 | | BPD-002 | DD-202 | BYA10D2 | CCD-202 | B-220 | 5HK-S20 |
| C52 | .02 400V | | P488N-02 | DD-203 | CUB4S2 | 4DP-2-203 | GEM-412 | 4TM-S20 |
| C53 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C54 | 220 | | DI-220 | DD-221 | L10T22 | CCD-221 | B-322 | 10TS-T22 |
| C55 | .02 400V | | P488N-02 | DD-203 | CUB4S2 | 4DP-2-203 | GEM-412 | 4TM-S20 |
| C56 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C57 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C58 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C59 | 3000 | | SI 3000 | D6-302 | BYA10D3 | CCD-302 | GP230 | 10TS-D30 |
| C60 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C61 | .047 400V | | P488N-047 | DD-503 | CUB4S47 | 4DP-3-473 | GEM-4147 | 4TM-S47 |
| C62 | 220 | | DI-220 | DD-221 | L10T22 | CCD-221 | B-322 | 10TS-T22 |
| C63 | 1000 | (2000) † | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C64 | 2000 | | BPD-002 | DD-202 | BYA10D2 | CCD-202 | B-220 | 5HK-D20 |
| C65 | .02 400V | | P488N-02 | DD-203 | CUB4S2 | 4DP-2-203 | GEM-412 | 4TM-S20 |
| C66 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C67 | 220 | | DI-220 | DD-221 | L10T22 | CCD-221 | B-322 | 10TS-T22 |
| C68 | .02 400V | | P488N-02 | DD-203 | CUB4S2 | 4DP-2-203 | GEM-412 | 4TM-S20 |
| C69 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C70 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C71 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C72 | 680 | | 1468-00068 | D6-681 | 5W5T68 | CM-19B-681M | MCJ249 | 1FM-368 |
| C73 | 680 | | 1468-00068 | D6-681 | 5W5T68 | CM-19B-681M | MCJ249 | 1FM-368 |
| C74 | .05 400V | Note 1 | P488N-05 | DD-503 | CUB4S5 | 4DP-3-503 | GEM-415 | 4TM-S50 |

† Alternate Value
Note 1. Not used in some versions.

# AMP PARTS LIST AND DESCRIPTIONS (Continued)

## CONTROLS

| ITEM No. | RATING RESISTANCE | RATING WATTS | REPLACEMENT DATA STEELMAN PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | CTS-IRC PART No. | MALLORY PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| R31A | 3meg * | | 368071 | | | | | Loudness, Channel 1 |
| B | 3meg * | | | | | | | Loudness, Channel 2 |
| C | 1meg | | | | | | | |
| R32A | 3meg | | 368062 | | | | | Balance, Channel 1 |
| B | 3meg | | | | | | | Balance, Channel 2 |
| R33A | 1meg | | 368074 | B-69 | AD47-1meg-S | | FA16L | Treble, Channel 2 |
| B | 1meg | | | SR-69 | Not Req. | | RU16L | Treble, Channel 1 |
| C | Shaft | | | Not Req. | KSS-3 | | CS3500 | |
| R34A | 1meg | | 368072 | B-69 | AD47-1meg-S | | FA16L | Bass, Channel 2 |
| B | 1meg | | | SR-69 | Not Req. | | RU16L | Bass, Channel 1 |
| C | Shaft | | | Not Req. | KSS-3 | | CS3500 | |
| D | Switch | | | KR-1 | SWE-12 | | US41 | Power-Off/On |

* Taps @ 1meg & 2meg. Tap #2 not used.

## RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise stated.

| ITEM No. | RATING | REMARKS |
|---|---|---|
| R35 | 100K | |
| R36 | 2.2meg | (2 meg) * |
| R37 | 1meg | |
| R38 | 100K | |
| R39 | 5Ω 5W | Pt. #510039 IRC#PW5-5Ω |
| R40 | 100Ω | |
| R41 | 5Ω 5W | Pt. #510039 IRC#PW5-5Ω |
| R42 | 100Ω | |
| R43 | 2200Ω | |
| R44 | 6.8meg | |
| R45 | 100K | |
| R46 | 47K | |
| R47 | 10K | |
| R48 | 100K | |
| R49 | 1meg | |
| R50 | 100K | |
| R51 | 6800Ω | |

| ITEM No. | RATING | REMARKS |
|---|---|---|
| R52 | 100K | |
| R53 | 1meg | |
| R54 | 47K | |
| R55 | 47K | |
| R56 | 2200Ω | |
| R57 | 100Ω | |
| R58 | 470K | |
| R59 | 100Ω | |
| R60 | 470K | |
| R61 | 100Ω 2W | |
| R62 | 100K | |
| R63 | 6.8meg | |
| R64 | 100K | |
| R65 | 47K | |
| R66 | 10K | |
| R67 | 100K | |
| R68 | 1meg | |
| R69 | 100K | |
| R70 | 6800Ω | |

| ITEM No. | RATING | REMARKS |
|---|---|---|
| R71 | 100K | |
| R72 | 1meg | |
| R73 | 47K | |
| R74 | 2200Ω | |
| R75 | 47K | |
| R76 | 100Ω | |
| R77 | 470K | |
| R78 | 100Ω | |
| R79 | 470K | |
| R80 | 100Ω 7W | IRC#PW10-100Ω |
| R81 | 4700Ω | |
| R82 | 18K 1W | (1250Ω) † |
| R83 | 18K 1W | Note 1 |
| R84 | 1.2meg | |
| R85 | 7.5Ω 10W | Pt. #510040 IRC#PW10-7.5Ω |
| R86 | 7.5Ω 5W | Pt. #510039 IRC#PW5-7.5Ω |

Note 1. Not used in some versions.
† Alternate Value.

## CROSSOVER CHOKE

| ITEM No. | RATINGS CURRENT (Measured) | RATINGS DC RES. | RATINGS INDUCTANCE (0 CURRENT 1000 ∿) | REPLACEMENT DATA STEELMAN PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| L17 | | .3Ω | 250uh | 455071 | | | | | |
| L18 | | .3Ω | 250uh | 455071 | | | | | |

## TRANSFORMER (POWER)

| ITEM No. | RATING PRI. | RATING SEC. 1 | RATING SEC. 2 | REPLACEMENT DATA STEELMAN PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| T2 | 117V @ .86A | 100V @ .620A | 12.6VCT @ 3A | 440023 | | | | | |

## TRANSFORMER (AUDIO OUTPUT)

| ITEM No. | IMPEDANCE PRI. | IMPEDANCE SEC. | REPLACEMENT DATA STEELMAN PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|
| T3 | 5100Ω CT | 6-8Ω CT | 430565 | | | | | |
| T4 | 5100Ω CT | 6-8Ω CT | 430565 | | | | | |

## SPEAKER

| ITEM No. | TYPE SIZE | TYPE FIELD | TYPE V. C. IMP. | REPLACEMENT DATA STEELMAN PART No. | REPLACEMENT DATA QUAM PART No. | NOTES |
|---|---|---|---|---|---|---|
| SP1 | 12" | PM | 3-4Ω | 409005 | 12A6A | |
| SP2 | 6" | PM | 3-4Ω | 406002 | 6A31 | |
| SP3 | 4" | PM | 3-4Ω | 404022 | 4A1 | |
| SP4 | 12" | PM | 3-4Ω | 409005 | 12A6A | |
| SP5 | 6" | PM | 3-4Ω | 406002 | 6A31 | |
| SP6 | 4" | PM | 3-4Ω | 404022 | 4A1 | |

## RECTIFIERS

| ITEM No. | RATING CURRENT (Measured) | REPLACEMENT DATA STEELMAN PART No. | GENERAL ELECTRIC PART No. | RCA PART No. | SARKES TARZIAN PART No. | SYLVANIA PART No. | NOTES |
|---|---|---|---|---|---|---|---|
| M6 | .180A | 380020 | | 1N1763 | 2F4 | SR200 | |
| M7 | .180A | 380020 | | 1N1763 | 2F4 | SR200 | |

## PHONO CARTRIDGE & NEEDLES

*NEEDLE LISTINGS SHOWN ARE FOR RESPECTIVE REPLACEMENT CARTRIDGES ONLY.

| ITEM No. | REPLACEMENT DATA STEELMAN PART No. CARTRIDGE | STEELMAN PART No. NEEDLE* | ASTATIC PART No. CARTRIDGE | ASTATIC PART No. NEEDLE* | ELECTRO-VOICE PART No. CARTRIDGE | ELECTRO-VOICE PART No. NEEDLE* | SONOTONE PART No. CARTRIDGE | SONOTONE PART No. NEEDLE* | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| M8 | | | 13TB | Not Req. | 26S | S1-1 * S3-3 * | 10T2-S | Not Req. | |

## CRYSTAL DIODES

| ITEM No. | ORIG. TYPE | REPLACEMENT DATA STEELMAN PART No. | RAYTHEON PART No. | SYLVANIA PART No. | NOTES |
|---|---|---|---|---|---|
| M9 | 1N295 | 359021 | 1N295 | 1N295 | Meter Rect. (Pigtail) |
| M10 | 1N295 | 359021 | 1N295 | 1N295 | Meter Rect. (Pigtail) |

## MISCELLANEOUS

| ITEM No. | PART NAME | STEELMAN PART No. | NOTES |
|---|---|---|---|
| M11 | Switch | 370059 | Function Selector (Rotary Wafer) |
| M12 | Meter | 830151 | Balance |

## CABINETS & CABINET PARTS

**(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)**

| NAME | PART NO. | DESCRIPTION |
|---|---|---|
| Knob | 272327 | Tuning, Model 704 |
| Knob | 272328 | Function, Model 704 (Tuner) |
| Knob | 272315 | Loudness, Bass, Treble, Balance, Function (Amplifier) |
| Cabinet | 211270 | Mahogany, Model 604 |
| Cabinet | 211271 | Limed Oak, Model 604 |
| Cabinet | 211272 | Walnut, Model 604 |
| Cabinet | 211320 | Cherry French Provincial, Model 604 |
| Cabinet | 211280 | Mahogany, Model 704 |
| Cabinet | 211281 | Limed Oak, Model 704 |
| Cabinet | 211282 | Walnut, Model 704 |
| Cabinet | 211330 | Cherry, French Provincial, Model 704 |

## WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

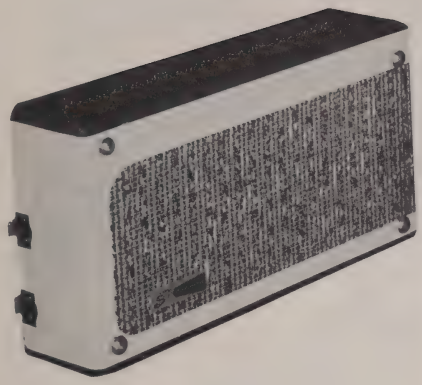
Low-Loss Shielded Lead (Interconnecting) ..... Use BELDEN No. 8401

Phono Pick-up Arm Cable ..... Use BELDEN No. 8430 (Two Conductor - Twisted)

PHOTOFACT® Folder

# SYMPHONIC MODELS 523, 1523, 1619, 1623, 1693

SYMPHONIC MODELS 523, 1523, 1619, 1623, 1693



MODEL 1619

SYMPHONIC MODELS 523, 1523, 1619, 1623, 1693

| | |
|---|---|
| TRADE NAME | Symphonic 523, 1523, 1619, 1623, 1693 |
| MANUFACTURER | Symphonic Radio & Electronics, 235 Jersey Ave., New Brunswick, N. J. |
| TYPE SET | AC Operated 3 Tube Stereo Phono Amplifier With 4 Speed Automatic Record Changer |
| POWER SUPPLY | 110 – 120 Volts AC, 60 Cycles RATING 34 Watts, .36 Amp. @117 Volts AC (Less Motor) |

FOR SERVICE INFORMATION ON RECORD CHANGER USED IN MODELS 1523, 1619, 1693 – SEE SIMILAR V-M 1201 – PHOTOFACT SET 436 FOLDER 18 OR RECORD CHANGER MANUAL RC-12

FOR SERVICE INFORMATION ON RECORD CHANGER USED IN MODEL 523 – SEE SIMILAR MONARCH UA8 – PHOTOFACT SET 381 FOLDER 11 OR RECORD CHANGER MANUAL RC-11

FOR SERVICE INFORMATION ON RECORD CHANGER USED IN MODEL 1623 – SEE SIMILAR TELEFUNKEN TW560 – PHOTOFACT SET 371 FOLDER 12 OR RECORD CHANGER MANUAL RC-10

SET 518 FOLDER 14

**HOWARD W. SAMS & CO., INC.** Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of KT176

the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

# PARTS LIST AND DESCRIPTIONS

## TUBES

| ◆ GENERAL ELECTRIC ◆ RAYTHEON ◆ SYLVANIA ◆ | | | | | |
|---|---|---|---|---|---|
| ITEM No. | USE | TYPE | ITEM No. | USE | TYPE |
| V1 | Channel A AF Amp. - Channel B AF Amp. | 12AX7 | V2<br>V3 | Channel A Output<br>Channel B Output | 50C5<br>50C5 |

## ELECTROLYTIC CAPACITORS

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | CAP. | VOLT. | SYMPHONIC PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | PYRAMID PART No. | SPRAGUE PART No. | NOTES |
| C1A | 60 | 150 | CE-101 | PRS3800 | BBRT84215 | TCT3119 | TDLT-7 | TVA-3455 | |
| B | 40 | 150 | | | | | | | |
| C | 20 | 150 | | | | | | | |

## FIXED CAPACITORS

**Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
| C2 | .05 400V | | P488N-05 | DD-503 | CUB4S5 | 4DP-3-503 | GEM-415 | 4TM-S50 |
| C3 | 2000 | Note 1 | BPD-002 | DD-202 | BYA10D2 | CCD-202 | B-220 | 5HK-D20 |
| C4 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C5 | 2000 | Note 1 | BPD-002 | DD-202 | BYA10D2 | CCD-202 | B-220 | 5HK-D20 |
| C6 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C7 | .05 400V | | P488N-05 | DD-503 | CUB4S5 | 4DP-3-503 | GEM-415 | 4TM-S50 |

Note 1. Model 1523 uses 470mmf in this application.

## CONTROLS

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| | RESISTANCE | WATTS | SYMPHONIC PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | CTS-IRC PART No. | MALLORY PART No. | |
| R1A | 3meg | ½ | VC-198 ① | B-85 | A47-3meg-Z | Q13-140 | U57 | Loudness, Channel A |
| B | Shaft | | | Not Req. | KSS-3 | Not Req. | Not Req. | |
| R2A | 3meg | ½ | VC-198 ① | B-85 | A47-3meg-Z | Q13-140 | U57 | Loudness, Channel B |
| B | Shaft | | | Not Req. | KSS-3 | Not Req. | Not Req. | |
| R3A | 500K | ½ | VC-270 | B-60 | AD47-500K-Z | | FA55A | Tone, Channel B |
| B | 500K | ½ | | SR-60 | Not Req. | | RU55A | Tone, Channel A |
| C | Shaft | | | Not Req. | KSS-3 | | CS3500 | |

Note 1. Model 1523 combines R1 and R2 in a dual "clutch" type control (Part #VC-291). To adjust separate channels, hold one shaft while turning the other.
Models 523, 1523, 1623 combine R1 and R2 in a dual "Push-lock" type control (Part #VC-305). To adjust separate channels, push inside shaft.

## RESISTORS (IRC or EQUIVALENT)

**All wattages 1/2 watt, or less, unless otherwise listed.**

| ITEM No. | RATING | REMARKS |
|---|---|---|
| R4 | 6.8meg | |
| R5 | 150Ω 1W | |
| R6 | 6.8meg | |

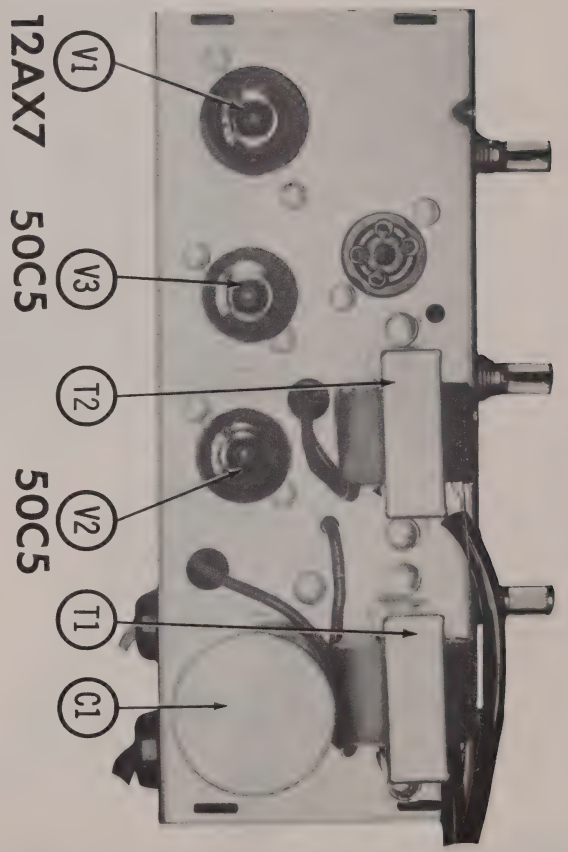
| ITEM No. | RATING | REMARKS |
|---|---|---|
| R7 | 150Ω 1W | |
| R8 | 100Ω 1W | |
| R9 | 2200Ω | |

| ITEM No. | RATING | REMARKS |
|---|---|---|
| R10 | 100Ω 1W | |
| R11 | 47Ω 2W | |
| R12 | 47Ω 2W | |

## TRANSFORMER (AUDIO OUTPUT)

| ITEM No. | IMPEDANCE | | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. | SYMPHONIC PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | |
| T1 | 1900Ω | 3-4Ω | TR-174① | A-3025② | A-3332② | 26S58 | S-12X② | ① Models 1523, 1693 Use Part #TR-109.<br>② Drill new mounting hole. |
| T2 | 1900Ω | 3-4Ω | TR-174① | A-3025② | A-3332② | 26S58 | S-12X② | |

# CHASSIS—TOP VIEW



# PARTS LIST AND DESCRIPTIONS (Continued)

## SPEAKER

| ITEM No. | TYPE | | | REPLACEMENT DATA | | NOTES |
|---|---|---|---|---|---|---|
| | SIZE | FIELD | V. C. IMP. | SYMPHONIC PART No. | QUAM PART No. | |
| SP1 | 5 1/4" | PM | 3-4Ω | SP-605 * | 52A21 | * Used in Model 1619 |
| SP2 | 5 1/4" | PM | 3-4Ω | SP-605 * | 52A21 | ♦ Used in Models 1523, 1623, 1693 |
| | 6" | PM | 3-4Ω | SP-600 ♦ ‡ | 6A31 | ‡ Used in Model 523 |
| | EARPHONE SPEAKER | | | SP-201 ‡ | | |

## COMPONENT COMBINATIONS

| ITEM No. | USE | DESCRIPTION | SYMPHONIC PART No. | REPLACEMENT DATA |
|---|---|---|---|---|
| K1 | Audio Coupling | 250mmf, 10000mmf, 250K, 500K | | Aerovox PA-112-4<br>Centralab PC-81<br>Cornell-Dubilier 113TM2<br>Sprague T-2 |
| K2 | Audio Coupling | 250mmf, 10000mmf, 250K, 500K | | |

## PHONO CARTRIDGE & NEEDLES

*NEEDLE LISTINGS SHOWN ARE FOR RESPECTIVE REPLACEMENT CARTRIDGES ONLY.

| ITEM No. | REPLACEMENT DATA | | | | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | SYMPHONIC PART No. | | ASTATIC PART No. | | ELECTRO-VOICE PART No. | | SONOTONE PART No. | | |
| | CARTRIDGE | NEEDLE* | CARTRIDGE | NEEDLE* | CARTRIDGE | NEEDLE* | CARTRIDGE | NEEDLE* | |
| M1 | | | | | | | | | |

## POWER RECTIFIERS

| ITEM No. | RATING | REPLACEMENT DATA | | | | NOTES |
|---|---|---|---|---|---|---|
| | CURRENT (Measured) | SYMPHONIC PART No. | RCA PART No. | SARKES TARZIAN PART No. | SYLVANIA PART No. | |
| M2 | .060A | SR-107 | 1N1763 | 2F4 | SR200 | |

## CABINETS & CABINET PARTS

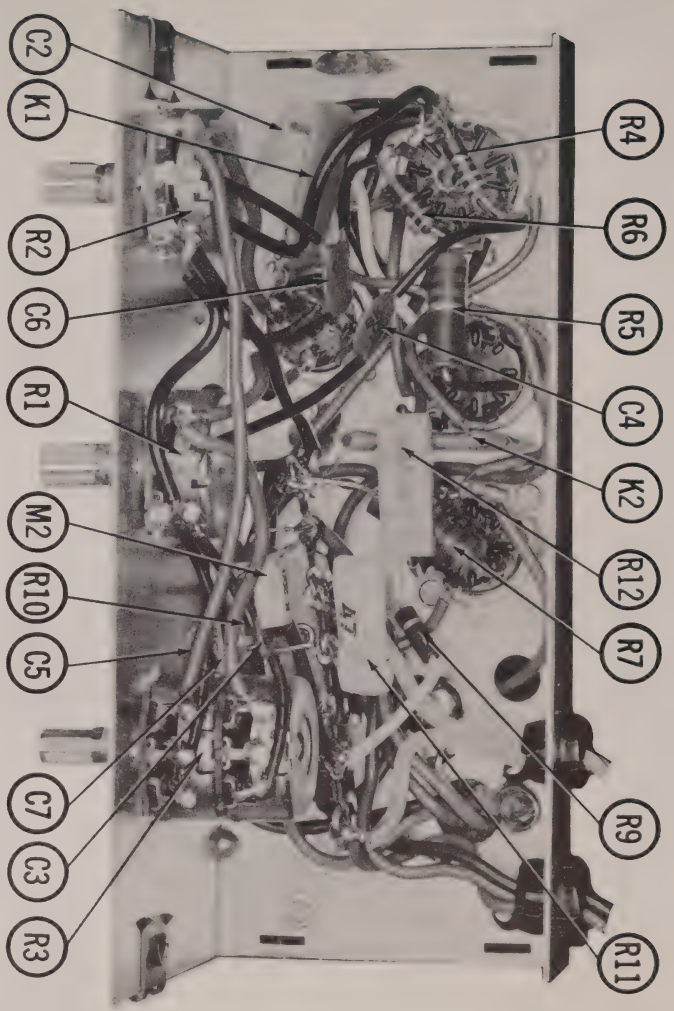
**(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)**

| NAME | PART NO. | DESCRIPTION |
|---|---|---|
| Knob | KN374 | White, Loudness, Tone, Model 1619 |
| Knob | KN353 | Clear, Rear, Tone, Model 1693, 1623 |
| Knob | KN361 | Black With Chrome Insert, Front, Tone, Models 1693, 1623, 523 |
| Knob | KN360 | Black With Chrome Insert, Volume, Models 1693, 1623, 523 |
| Knob | KN362 | Clear, Tone, Models 1623, 523, 1523 |
| Knob | KN372 | Black With Brass Insert, Volume, Models 1623, 1523, and Tone, Model 1523 |
| Knob | KN373 | Black With Brass Insert, Tone, Model 1623 |

## WIRING DATA

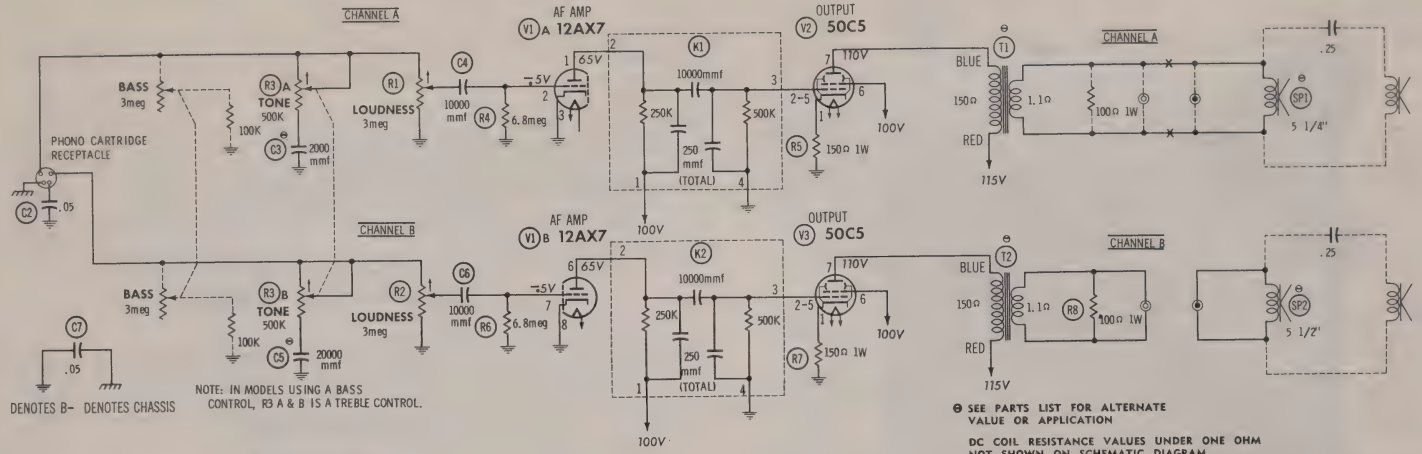
| | |
|---|---|
| General-use Unshielded Hook-up Wire | Use BELDEN No. 8530 (Solid) Available in Ten Colors<br>8524 (Stranded) Available in Ten Colors |
| Power Cord | Use BELDEN No. 1765-B (6 Ft. Length)<br>1725-K (7½ Ft. Length) |
| Low-Loss Shielded Lead (Interconnecting) | Use BELDEN No. 8401 |
| Phono Pick-up Arm Cable | Use BELDEN No. 8430 (Two Conductor - Twisted) |

## CHASSIS—BOTTOM VIEW




SYMPHONIC MODELS 523, 1523, 1619, 1623, 1693

FOLDER 14




RESISTANCE READINGS

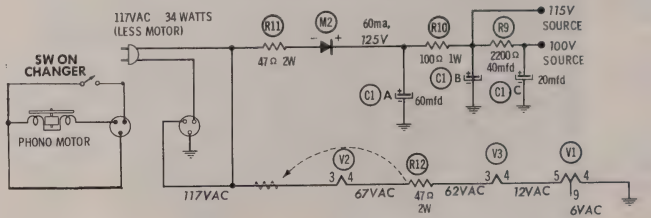
| ITEM | TUBE | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| V1 | 12AX7 | †250K | 6.8meg | 0Ω | 0Ω | 20Ω | †250K | 6.8meg | 0Ω | 10Ω |
| V2 | 50C5 | 150Ω | NC | 225Ω | 147Ω | 500K | †2300Ω | †250Ω | | |
| V3 | 50C5 | 150Ω | NC | 100Ω | 20Ω | 500K | †2300Ω | †250Ω | | |

† MEASURED FROM OUTPUT OF M2. NC NO CONNECTION

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)




1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

©Howard W. Sams & Co., Inc. 1961

**SYMPHONIC MODELS 523, 1523, 1619, 1623, 1693**

PHOTOFACT® Folder

**TECH-MASTER**
**MODEL P -41**

TECH-MASTER
MODEL P -41

TECH-MASTER
MODEL P -41

| | |
|---|---|
| TRADE NAME | Tech-Master Model P -41 |
| MANUFACTURER | Tech-Master Products Co., 75 Front Street, Brooklyn, N. Y. |
| TYPE SET | Battery Operated Transistorized Stereo Preamplifier |
| POWER SUPPLY | 13.5 Volts DC RATING 5MA @ 13.5 Volts DC |

**HOWARD W. SAMS & CO., INC.** Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

# PARTS LIST AND DESCRIPTIONS

## TRANSISTORS

| ITEM No. | ORIG. TYPE | USE | REPLACEMENT DATA | | | NOTES |
|---|---|---|---|---|---|---|
| | | | RCA PART No. | RAYTHEON PART No. | SYLVANIA PART No. | |
| X1 | 2N407 | Channel A Preamp. | 2N407 | 2N631 | 2N383 | PNP |
| X2 | 2N407 | Channel A AF Amp. | 2N407 | 2N631 | 2N383 | PNP |
| X3 | 2N407 | Channel A AF Amp. | 2N407 | 2N631 | 2N383 | PNP |
| X4 | 2N407 | Channel B Preamp. | 2N407 | 2N631 | 2N383 | PNP |
| X5 | 2N407 | Channel B AF Amp. | 2N407 | 2N631 | 2N383 | PNP |
| X6 | 2N407 | Channel B AF Amp. | 2N407 | 2N631 | 2N383 | PNP |

## ELECTROLYTIC CAPACITORS

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | CAP. | VOLT. | Tech-Master PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | PYRAMID PART No. | SPRAGUE PART No. | |
| C1 | 10 | 3 | | PRS1250 | BBR10-25 | TT3X10 | TD-10-25 | TVA-1204 | |
| C2 | 10 | 3 | | PRS1250 | BBR10-25 | TT3X10 | TD-10-25 | TVA-1204 | |
| C3 | 15 | 15 | | PTT-15015 | NLW15-15 | TT25X15 | ML15-25 | TE-1156 | |
| C4 | 15 | 15 | | PTT-15015 | NLW15-15 | TT25X15 | ML15-25 | TE-1156 | |
| C5 | 10 | 3 | | PRS1250 | BBR10-25 | TT3X10 | TD-10-25 | TVA-1204 | |
| C6 | 50 | 3 | | PTT-3050 | NLW50-3 | TT6X50 | ML50-3 | TE-1058 | |
| C7 | 50 | 15 | | PTT-15050 | NLW50-15 | TT15X50 | ML50-15 | TE-1160 | |
| C8 | 10 | 3 | | PRS1250 | BBR10-25 | TT3X10 | TD-10-25 | TVA-1204 | |
| C9 | 10 | 3 | | PRS1250 | BBR10-25 | TT3X10 | TD-10-25 | TVA-1204 | |
| C10 | 15 | 15 | | PTT-15015 | NLW15-15 | TT25X15 | ML15-25 | TE-1156 | |
| C11 | 15 | 15 | | PTT-15015 | NLW15-15 | TT25X15 | ML15-25 | TE-1156 | |
| C12 | 10 | 3 | | PRS1250 | BBR10-25 | TT3X10 | TD-10-25 | TVA-1204 | |
| C13 | 50 | 3 | | PTT-3050 | NLW50-3 | TT6X50 | ML50-3 | TE-1058 | |
| C14 | 50 | 15 | | PTT-15050 | NLW50-15 | TT15X50 | ML50-15 | TE-1160 | |

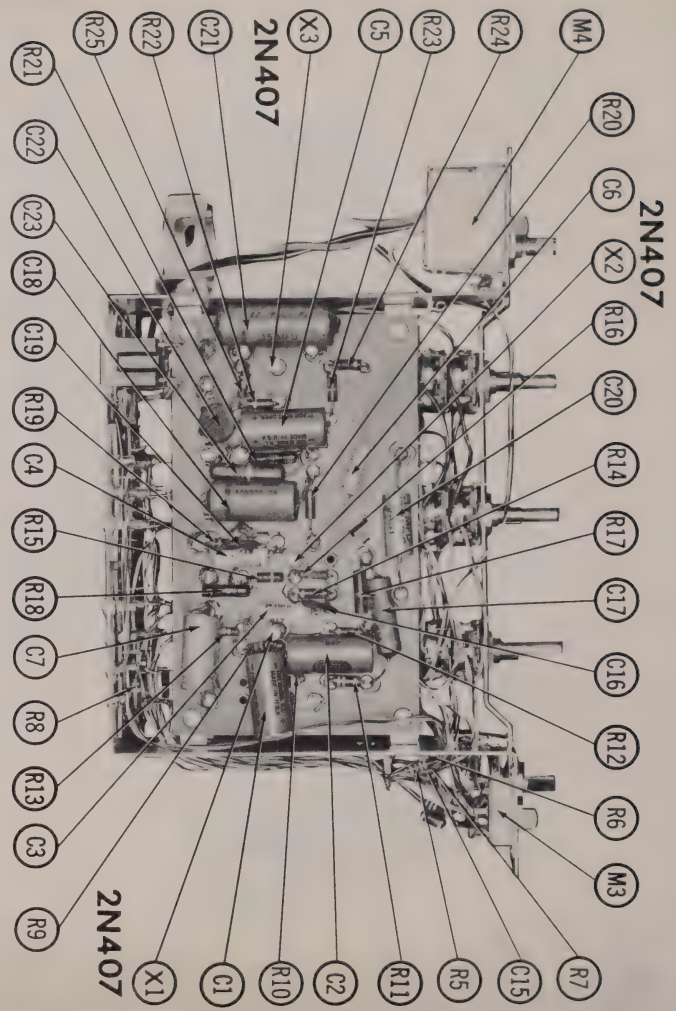
## FIXED CAPACITORS

**Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
| C15 | 12 | | SI 12 | D6-120 | L10Q12 | CCD-120 | GP412 | 10TS-Q12 |
| C16 | 5000 | | BPD-005 | DD-502 | BYA10D5 | CCD-502 | B-250 | 5HK-D50 |
| C17 | .047 200V | | P288N-047 | DD-503 | CUB2S47 | 4DP-3-473 | GEM-4147 | 2TM-S47 |
| C18 | .22 200V | | P288N-22 | | CUB2P22 | 2DP-2-224 | GEM-2022 | 2TM-P22 |
| C19 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C20 | .13 100V | | P288N-15 | | CUB2P15 | 2DP-3-154 | GEM-2015 | 2TM-P15 |
| C21 | .15 200V | (.2) † | P288N-15 | | CUB2P15 | 2DP-3-154 | GEM-2015 | 2TM-P15 |
| C22 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C23 | 22000 | | BPD-02 | DD-203 | BYB6S2 | CCD-203 | GP120 | 5HK-S20 |
| C24 | 12 | | SI 12 | D6-120 | L10Q12 | CCD-120 | GP412 | 10TS-Q12 |
| C25 | 5000 | | BPD-005 | DD-502 | BYA10D5 | CCD-502 | B-250 | 5HK-D5 |
| C26 | .047 200V | | P288N-047 | DD-502 | CUB2S47 | 4DP-3-473 | GEM-4147 | 2TM-S47 |
| C27 | .22 200V | | P288N-22 | | CUB2P22 | 2DP-2-224 | GEM-2022 | 2TM-P22 |
| C28 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C29 | .13 100V | | P288N-15 | | CUB2P15 | 2DP-3-154 | GEM-2015 | 2TM-P15 |
| C30 | .15 200V | (.2) † | P288N-15 | | CUB2P15 | 2DP-3-154 | GEM-2015 | 2TM-P15 |
| C31 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C32 | 22000 | | BPD-02 | DD-203 | BYB6S2 | CCD-203 | GP120 | 5HK-S20 |

† Alternate Value

## CHASSIS—TOP VIEW



# PARTS LIST AND DESCRIPTIONS (Continued)

## CONTROLS

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| | RESISTANCE | WATTS | Tech-Master PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | CTS-IRC PART No. | MALLORY PART No. | |
| R1A | 100K | | VC-45 | B-41 | AD47-100K-S | | FA15A | Volume, Channel B |
| B | 100K | | | SR-41 | Not Req. | | RU15A | Volume, Channel A |
| C | Shaft | | | Not Req. | FS-3 | | CS3500 | |
| R2A | 50K | | VC-43 | F1-29 | | | | Bass, Channel B |
| B | 50K | | | R2-29 | | | | Bass, Channel A |
| R3A | 50K | | VC-43 | F1-29 | | | ■ UE4164 | Treble, Channel B |
| B | 50K | | | R2-29 | | | | Treble, Channel A |
| R4A | 100K | | VC-44 | B-40 | A47-100K-S | Q11-128 | U41 | Balance |
| B | Shaft | | | Not Req. | KSS-3 | Not Req. | Not Req. | |

■ "STA-"OC" equivalent: FB54L, RU54L, OS625, IS1125.

## RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

| ITEM No. | RATING | REMARKS |
|---|---|---|
| R5 | 470K | |
| R6 | 1meg | |
| R7 | 470K | |
| R8 | 3900Ω | |
| R9 | 180K | |
| R10 | 47K | |
| R11 | 4700Ω | |
| R12 | 3300Ω | |
| R13 | 18K | |
| R14 | 3300Ω | |
| R15 | 220K | |
| R16 | 6800Ω | |
| R17 | 200Ω 1W | |
| R18 | 10K | |

| ITEM No. | RATING | REMARKS |
|---|---|---|
| R19 | 68K | |
| R20 | 1000Ω | |
| R21 | 10K | |
| R22 | 220K | |
| R23 | 22K | |
| R24 | 1000Ω | |
| R25 | 18K | |
| R26 | 470K | |
| R27 | 1meg | |
| R28 | 470K | |
| R29 | 3900Ω | |
| R30 | 180K | |
| R31 | 47K | |
| R32 | 4700Ω | |

| ITEM No. | RATING | REMARKS |
|---|---|---|
| R33 | 3300Ω | |
| R34 | 18K | |
| R35 | 3300Ω | |
| R36 | 220K | |
| R37 | 6800Ω | |
| R38 | 200Ω 1W | |
| R39 | 10K | |
| R40 | 68K | |
| R41 | 1000Ω | |
| R42 | 10K | |
| R43 | 220K | |
| R44 | 22K | |
| R45 | 1000Ω | |
| R46 | 18K | |

## BATTERIES

| ITEM No. | VOLTAGE | Tech-Master PART No. | REPLACEMENT DATA | | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | | | BURGESS | | EVEREADY | | MALLORY | | |
| | | | "A" | "B" | "A" | "B" | "A" | "B" | |
| M1 | 13.5V | | | XX9 | | 239 | | M-1900 | |

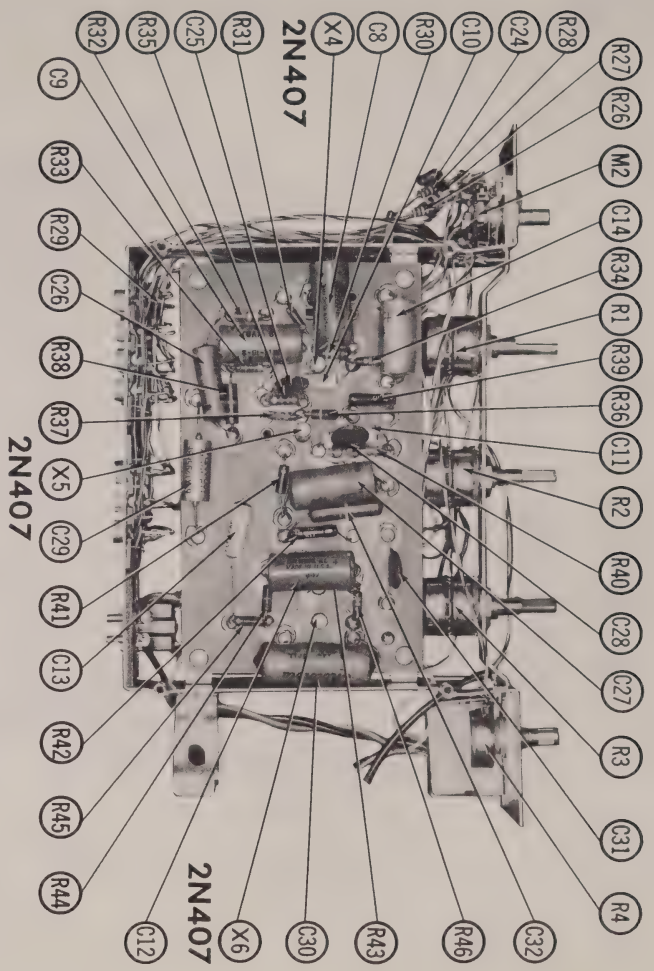
## MISCELLANEOUS

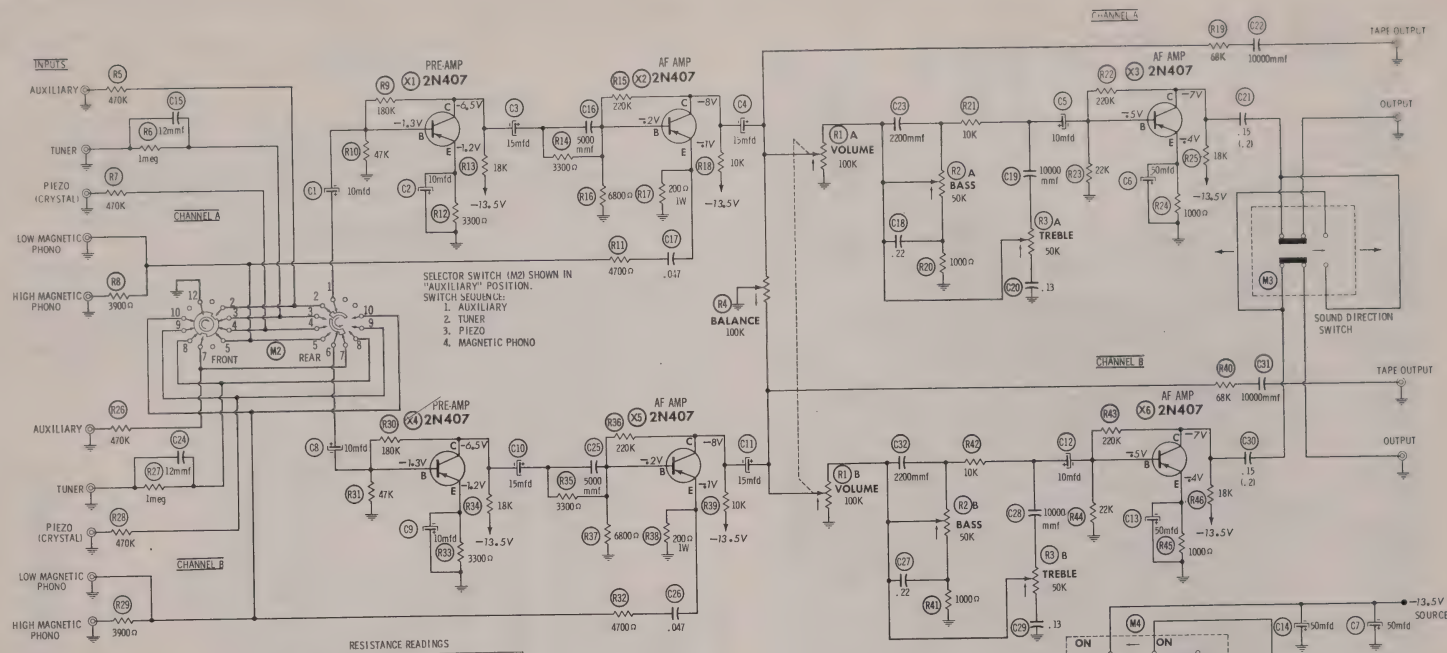
| ITEM No. | PART NAME | Tech - Master PART No. | NOTES |
|---|---|---|---|
| M2 | Switch | | Function Selector (Rotary Wafer Type) |
| M3 | Switch | | Sound Direction (DPDT, Slide Type) |
| M4 | Switch | | Power Off-On (DPDT, Slide Type) |

## WIRING DATA

General-use Unshielded Hook-up Wire .....Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

# CHASSIS—BOTTOM VIEW






RESISTANCE READINGS

| ITEM | TYPE | BASE | EMITTER | COLLECTOR |
|---|---|---|---|---|
| X1 | 2N407 | 40K | 3300Ω | †18K |
| X2 | 2N407 | 6800Ω | 200Ω | †10K |
| X3 | 2N407 | 22K | 1000Ω | †18K |
| X4 | 2N407 | 40K | 3300Ω | †18K |
| X5 | 2N407 | 6800Ω | 200Ω | †10K |
| X6 | 2N407 | 22K | 1000Ω | †18K |

† MEASURED FROM JUNCTION OF C14 & C7.
TRANSISTORS REMOVED FOR RESISTANCE MEASUREMENTS

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

©Howard W. Sams & Co., Inc. 1961

**TECH-MASTER MODEL P -41**

PHOTOFACT® Folder



TELECTRO
MODEL 1975

TELECTRO
MODEL 1975

## GENERAL INFORMATION

Telectro Model 1975 tape recorder records and plays back two tracks of material on standard-width recording tape, thus doubling playing time of a 3", 5" or 7" reel with no loss of frequency response or quality. The Model 1975 has two speeds, 3 3/4 and 7 1/2 ips.

A jack is provided on the dress plate for an amplified speaker to reproduce 2-track and 4-track stereo tapes.

Using both tracks of tape, recording times are as follows:

| Reel Size | 3 3/4" Speed | 7 1/2" Speed |
|---|---|---|
| 3" (300 ft.) | 1/2 hour | 1/4 hour |
| 5" (600 ft.) | 1 hour | 1/2 hour |
| 7" (1200 ft.) | 2 hours | 1 hour |

Connect this recorder to an outlet supplying 110-120 volts, 60 cycles AC only. Before connecting to line supply, be certain it agrees with these specifications.

Manufactured By:

Telectrosonic Corporation
35–18 37th Street,
Long Island City 1, New York

SET 518 FOLDER 16

**HOWARD W. SAMS & CO., INC.** Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

CQ443

## PREPARING FOR OPERATION

1. Open cover and remove power cord, microphone, empty reel, and reel of tape from storage space at rear of unit.
2. Remove cover by sliding hinges apart. Place unit so that controls are accessible and at a convenient height.
3. Plug power cord into any AC outlet having proper frequency and power requirements.
4. Recorder is now ready for use. Before operating, the operator should familiarize himself with the function of the controls.

## FUNCTION OF CONTROLS

### Function Control

Idle is neutral, or stationary, tape position. Turn knob to the left for Play. To record, depress Record button and hold while turning function selector knob to the right.

IMPORTANT: When recorder is not in use, function selector knob must be in Idle position.

### Wind-Rewind Control

Turn control to the right for fast wind; to the left for fast rewind. Before operating Wind-Rewind knob, function selector knob must be placed in Idle position.

### Speed Change Control

For 7 1/2 ips, put speed change control in down position; for 3 3/4 ips, in up position. Do not change speeds unless function selector knob is in Idle position.

## OPERATING INSTRUCTIONS

### Threading Tape

1. Place a reel of tape on the left (supply) spindle and an empty reel on the right (take-up) spindle, making sure the reel slots engage the spindle pins.
2. Unwind approximately 12 inches of tape from left (supply) reel. Hold a section of tape taut and insert in tape slot, making sure dull coated side of tape faces rear of recorder.
3. Insert free end of tape into one of three radial slots in hub of empty reel. Turn reel several turns counterclockwise until tape is secured to reel and all slack is taken up between reels.

### To Record

Plug line cord into a convenient wall receptacle and insert microphone into input jack on top of recorder. Turn On-Off-Volume control clockwise until a click is heard and allow sufficient time for unit to warm up. Thread tape as described under "Threading Tape". Turn function selector knob to Record. Adjust Volume control until recording level indicator flashes on high peaks only. To record from radio, phonograph, or television, follow this same procedure, keeping recorder volume at a normal level. To stop tape, turn function selector knob to the Idle position.

### To Wind or Rewind Tape

1. Turn function selector knob to Idle.
2. To wind tape onto reel, turn Wind-Rewind control to right and hold. Release the control when the desired section of the tape is reached.
3. To rewind tape, turn Wind-Rewind control to the left. The control need not be held as it locks into position. To stop rewind, return the Wind-Rewind knob to its center position.

### To Play a Recorded Tape

1. Follow instructions under "Threading Tape".
2. Turn On-Off-Volume control clockwise until a click is heard and allow sufficient time for unit to warm up.
3. Turn function selector knob to Play.
4. Adjust Volume control for desired listening level.
5. Turn function selector knob to Idle to stop tape.

CAUTION: Do not set function selector knob to Record when Play is desired, as previously recorded portion of tape will be automatically erased.

### Erasing Recorded Material

Any recording on tape is automatically erased before a new recording is put on tape when it is in Record. To erase a recording without putting anything on tape, follow normal recording procedure, but leave Volume control at its extreme counterclockwise position.

### To Edit and Splice Tape

NOTE: Since one track cannot be edited and spliced without affecting the other track, recordings to be edited should be limited

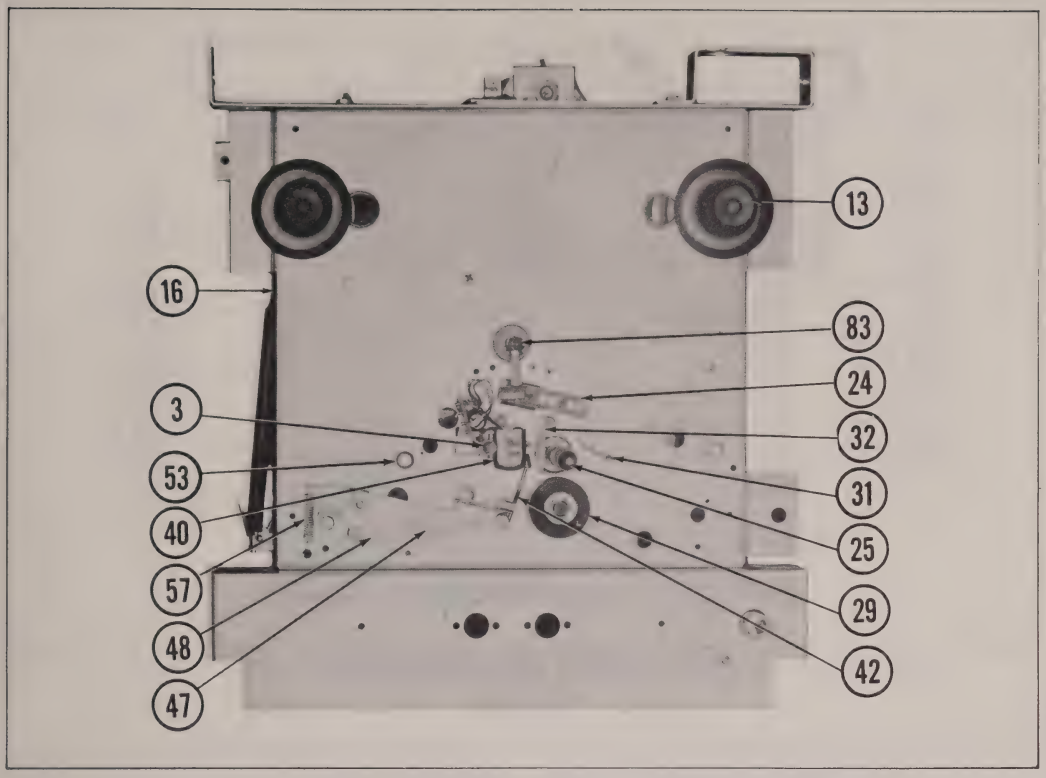



FIG.1 TOP VIEW OF MECHANISM WITH DRESS PLATE REMOVED

to one track only.

1. Tape may be edited by cutting out unwanted portions or by rejoining selections into another sequency. Announcements may be inserted between selections etc. Unused sections can be spliced for re-use.

2. For best results, cut tape at a slight diagonal, join ends with splicing tape on glossy side, and trim any excess width.

### Dual-Track Recording

One-half of the tape width is recorded at a time, thereby resulting in two-track recording. This two-track recording is accomplished in the following manner:

1. After a reel of tape has been recorded and all tape wound onto the right (takeup) reel, turn function selector knob to Idle.

2. Remove reels from recorder; turn full reel over and place it on left spindle. Place empty reel on right spindle.

3. Properly thread tape and proceed with recording.

4. After second track has been recorded, first track can be played without rewinding by reversing reel as described in step 2.

## DISASSEMBLY

### To Remove Recorder from Cabinet

1. Remove four screws on bottom of cabinet.

2. Remove four screws (two on each side) on sides of cabinet.

3. Lift up unit and disconnect speakers.

4. Remove unit from cabinet.

### To Remove Amplifier From Tape Transport

1. Disconnect head leads.

2. Disconnect speaker jack.

3. Disconnect external amplifier jack.

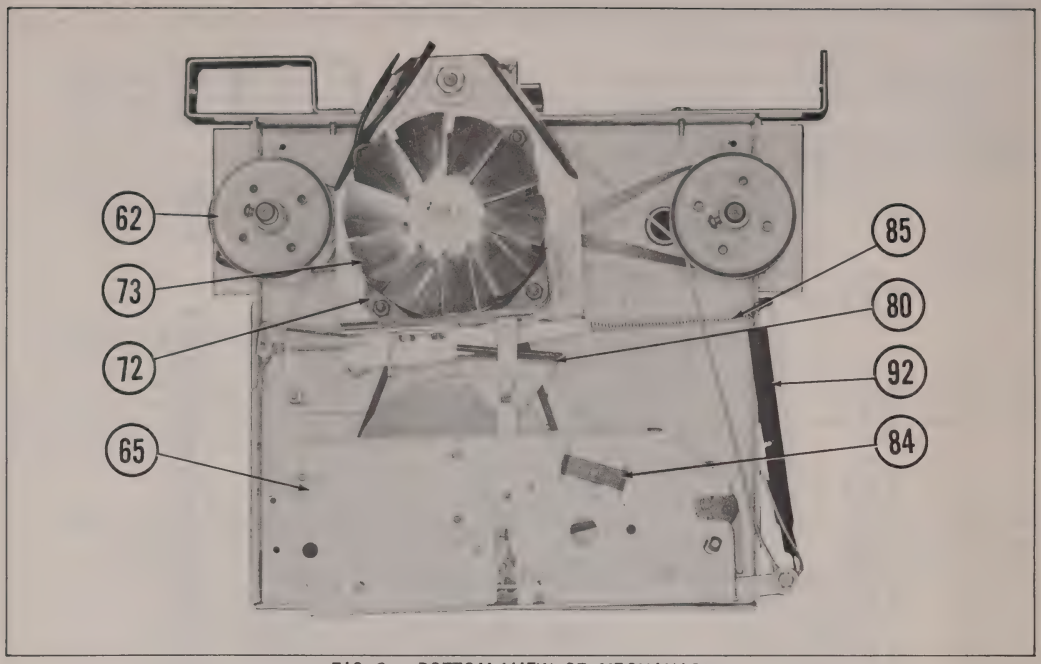



FIG.2 BOTTOM VIEW OF MECHANISM

4. Disconnect microphone input.
5. Disconnect sound lever indicator.
6. Disconnect motor leads.
7. Remove three mounting bolts holding amplifier to tape transport.

## CLEANING

Capstan roller assembly (29), capstan shaft, and recording head (40) may accumulate tape oxide coating, which wears off tape as it passes these parts. This accumulation will cause poor performance and should be removed with a soft cloth dipped in alcohol.

## LUBRICATION

All moving parts have self-lubricated oilite bearings; therefore, in normal use no lubrication is necessary. When unit is disassembled, clean all bearings with a clean, soft cloth and apply a thin film of oil on bearing surfaces.

## MECHANICAL ADJUSTMENTS

### Play-Record Head

The recording head (40) must be aligned with the tape. If it is not, low output, loss of high frequencies, or track overlap may result.

CAUTION: The play-record head was adjusted and sealed in place at the factory. Further adjustment is unnecessary unless head becomes faulty and needs replacing. The two adjustments are made as follows:

1. Head height should be adjusted so that top edge of tape aligns evenly with top edge of record head lamination. To adjust, loosen nuts (38) and slightly raise or lower recording head (40).
2. To adjust head for maximum frequency response, head adjustment screw (34) should be turned to the left or right. This moves the head from side to side slightly until maximum high frequencies are obtained. After adjustment, head height should be checked.

### Erase Head

Erase head assembly (45) should be adjusted so that the erase magnet affects the top half of recorded tape. This adjustment should be made in the Record position. Loosen erase head adjusting screw (44) in

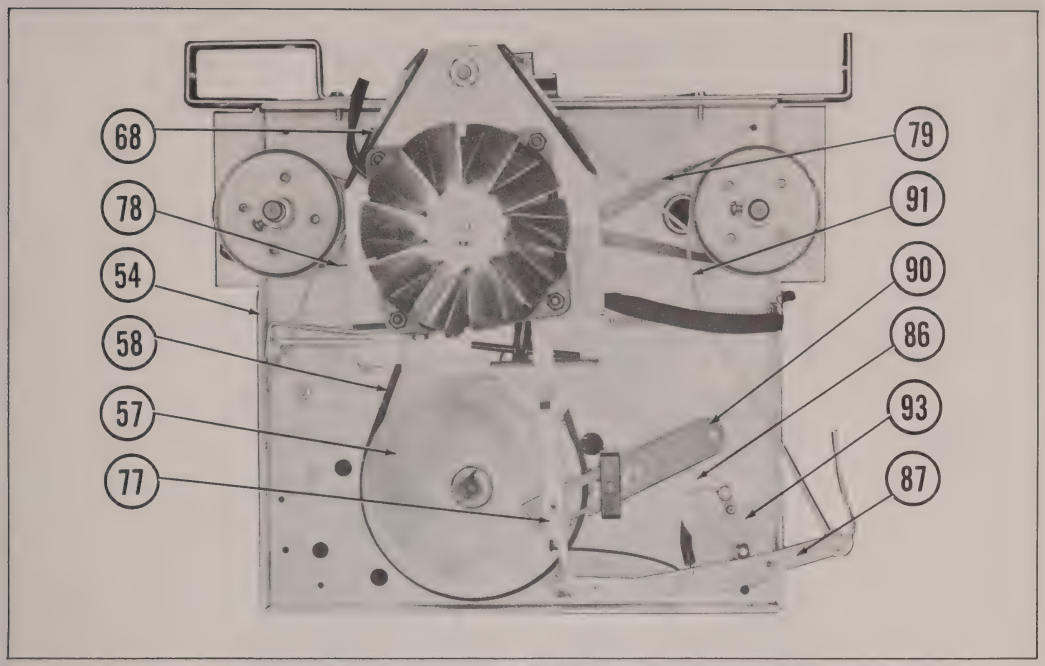



FIG.3 BOTTOM VIEW OF MECHANISM WITH MOTOR BOARD SUB PLATE REMOVED



erase head (45). Erase head assembly (45) is then moved up or down till only the top half of the tape is affected. When properly adjusted, only the top half of the tape will be erased.

### Brake Release Bracket

Brake release bracket (80) can be adjusted by loosening screw (81) and moving bracket forward or backward. When bracket (80) is moved to rear of recorder, wind-rewind lever assembly (83) contacts release bracket (80), giving brake cord (91) more slack. For less slack in brake cord (91), reverse the foregoing adjustment.

### Spindle End Play

Spindles should have 1/32" to 1/16" up and down movement. Loosen set screw (60) in upper pulley assembly (61) and move pulleys up or down until correct amount of end play is obtained.

TROUBLE CHART

| Symptom | Cause | Remedy |
|---|---|---|
| Fails to erase. | 1. Erase head adjusting screw (44) in erase head assembly (45) loose, causing erase head to remain in Play or Idle position. | 1. See "Erase Head Adjustment". |
| | 2. Interlock shaft assembly (84) fails to go down far enough to let interlock slide (90) move to one side. Function selector knob will not go into Record position when this occurs. | 2. Check for binding. |
| No Drive on record or playback. | 1. Rubber drive belt (58) loose or broken. | 1. Replace drive belt (58). |
| | 2. Take-up belt (78) loose or broken. | 2. Replace take-up belt (78). |

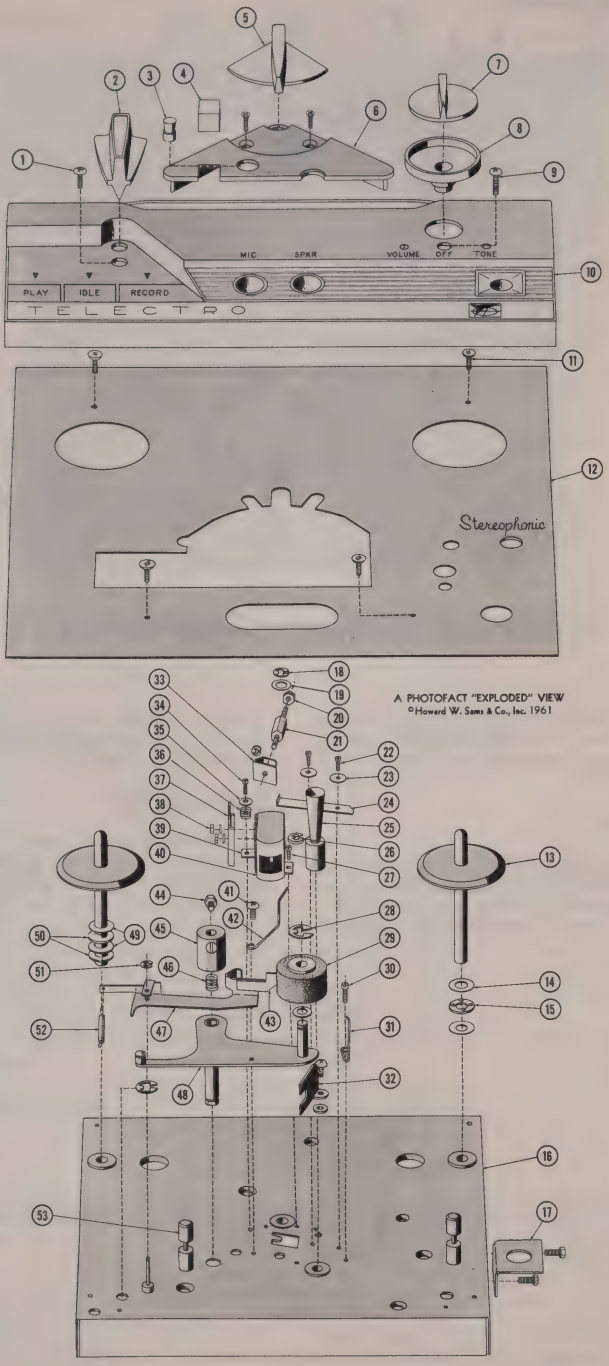



FIG.4A EXPLODED VIEW OF PARTS ABOVE BASEPLATE

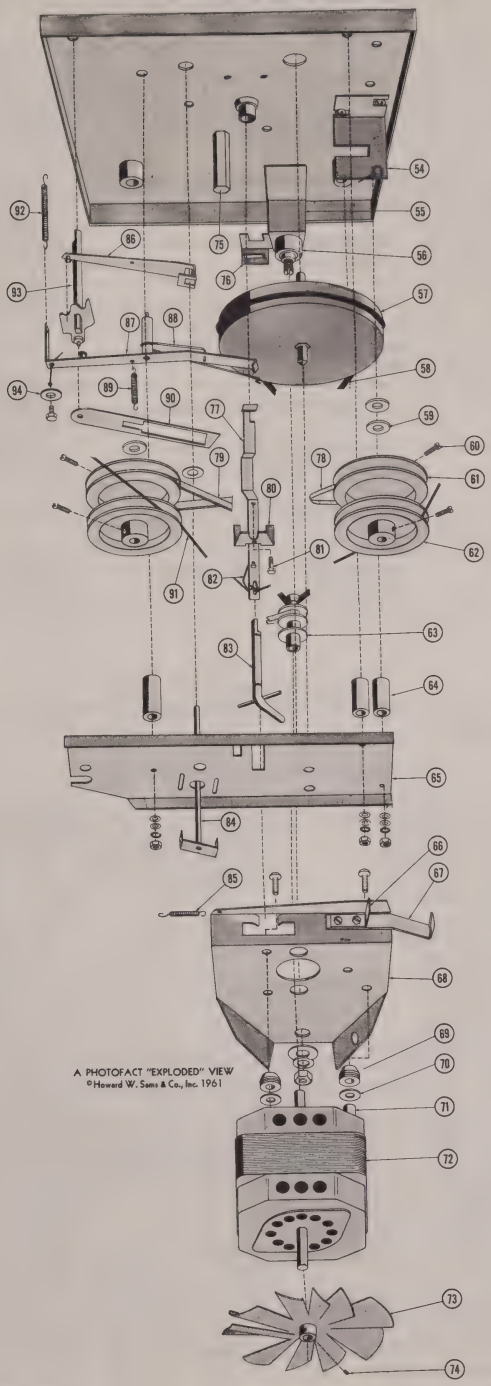



FIG. 4B EXPLODED VIEW OF PARTS BELOW BASEPLATE

## TROUBLE CHART (CON'T.)

| Symptom | Cause | Remedy |
|---|---|---|
| | 3. Defective motor (72). | 3. Replace motor (72). |
| | 4. Connecting leads fouling fan assembly (73). | 4. Dress leads so they will not contact fan assembly (73). |
| | 5. Flywheel and capstan shaft binding. | 5. Clean and lubricate flywheel and capstan shaft. |
| | 6. Takeup spring (85) disconnected or defective. | 6. Reconnect or replace spring (85). |
| Speed variation or wow. | 1. Dirty or oily capstan sleeve assembly (25), capstan roller assembly (29), or motor pulley (63). | 1. Clean with soft cloth and alcohol. |
| No wind or rewind. | 1. Drive belt (58) loose or broken. | 1. Replace drive belt (58). |
| | 2. Take-up belt (78) or rewind belt (79) loose or broken. | 2. Replace take-up belt (78) or rewind belt (79). |
| | 3. Oil or grease on driving surfaces. | 3. Clean with soft cloth and alcohol. |
| Function control does not operate. | 1. Brake spring (88) broken or disconnected. | 1. Replace or connect brake spring (88). |

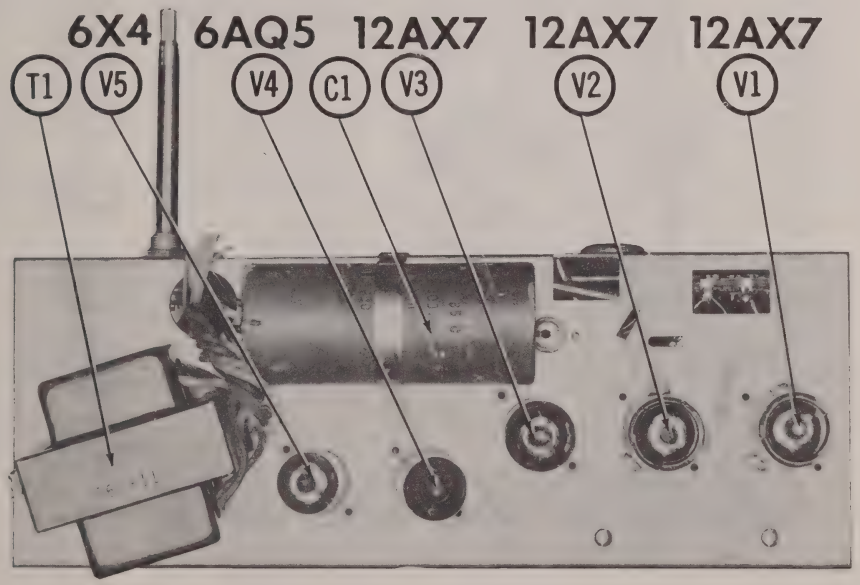
## MECHANICAL PARTS LIST

| Ref. No. | Part No. | Description | Ref. No. | Part No. | Description |
|---|---|---|---|---|---|
| 1 | | 6-32 x 3/4 Fl. Phil. Hd. M. Scr. Brass Pl. | 30 | | Screw No. 6 x 1/4 Lg. Hex. Slotted Sht. Metal Type Z |
| 2 | TA-1426 | Function Selector Knob | 31 | TG-414 | Tape Guide, Upright |
| 3 | TK-256-1 | Sound Head Lifting Knob | 32 | TB-2007 | Tape Guide Bracket |
| 4 | TA-1427 | Record Knob | 33 | TL-344 | Wind-Rewind Latch |
| 5 | TK-243-1 | Wind-Rewind Knob | 34 | | Head Adjustment Screw 2-56 x 7/16 |
| 6 | TE-274-1 | Rear Escutcheon | 35 | | No. 2 Flat Washer |
| 7 | TA-1428 | Volume Control Knob | 36 | TS-1755 | Record Head Spring |
| 8 | TK-241-1 | Tone Control Knob | 37 | TP-1150 | Sound Head Lifting Plate |
| 9 | | 6-32 x 1 1/8 Fl. Phil. Hd. M. Scr. Stl. Brass Pl. | 38 | | No. 2 Hex Nut |
| | | | 39 | TB-2028 | Recording Head Mounting Bracket |
| 10 | TA-1429 | Front Escutcheon | 40 | TH-494 | Recording Head |
| 11 | | 6-32 x 5/16 Lg. Truss Phil. Hd. M. Scr. Stl. Brass Pl. | 41 | | Screw 440 x 3/16 Phil. |
| | | | 42 | TE-479 | Tape Release Guide |
| 12 | TP-1242 | Motor Board Dress Plate | 43 | TP-863 | Record Head Pressure Pad |
| 13 | TS-2152 | Spindles | 44 | | Erase Head Adj. Screw |
| 14 | | .315 I.D. x 9/16 O.D. .010 Washer | 45 | TA-1123 | Erase Head Assembly |
| 15 | TB-809 | Ball Bearing Race | 46 | TS-1659 | Erase Head Spring |
| 16 | | Base Plate | 47 | TA-1447 | Pressure Pad Bracket Assembly |
| 17 | | Amplified Speaker Jack Bracket | 48 | TA-1186 | Capstan Roller Plate Assembly |
| 18 | 5103-25 | "C" Washer | 49 | | .315 I.D. x 1/2 O.D. x .032 Thk. Fibre Washer |
| 19 | | .255 I.D. x 1/2 O.D. x .010 Stl. Washer | 50 | | .315 I.D. x 9/16 O.D. x .010 Flat Steel Washer |
| 20 | | 6-32 Hex Nut | | | |
| 21 | TP-983 | Hex Shaft | 51 | 5133-25 | "C" Washer |
| 22 | | 6-32 x 3/16 Screw | 52 | TS-1931 | Pressure Pad Spring |
| 23 | | No. 6 Lock Washer | 53 | TT-712 | Tape Guide Post |
| 24 | TS-1854 | Spring | 54 | TB-619 | Excursion Limit Bracket |
| 25 | TA-1204 | Capstan Sleeve Assembly | 55 | TB-878 | Bearing Motor Pivot Bracket |
| 26 | 5000-25 | "C" Washer | 56 | TB-635 | Bearing Motor Pivot |
| 27 | | Head Adjustment Screw 2-56 x 5/16 | 57 | TF-304 | Flywheel Assembly |
| 28 | 5133-25 | "C" Washer | 58* | TO-171* | *Linear "O" Ring Drive Belt |
| 29 | TA-1002 | Capstan Roller Assembly | 59 | | .315 x 1/2 O.D. x .062 Washer |

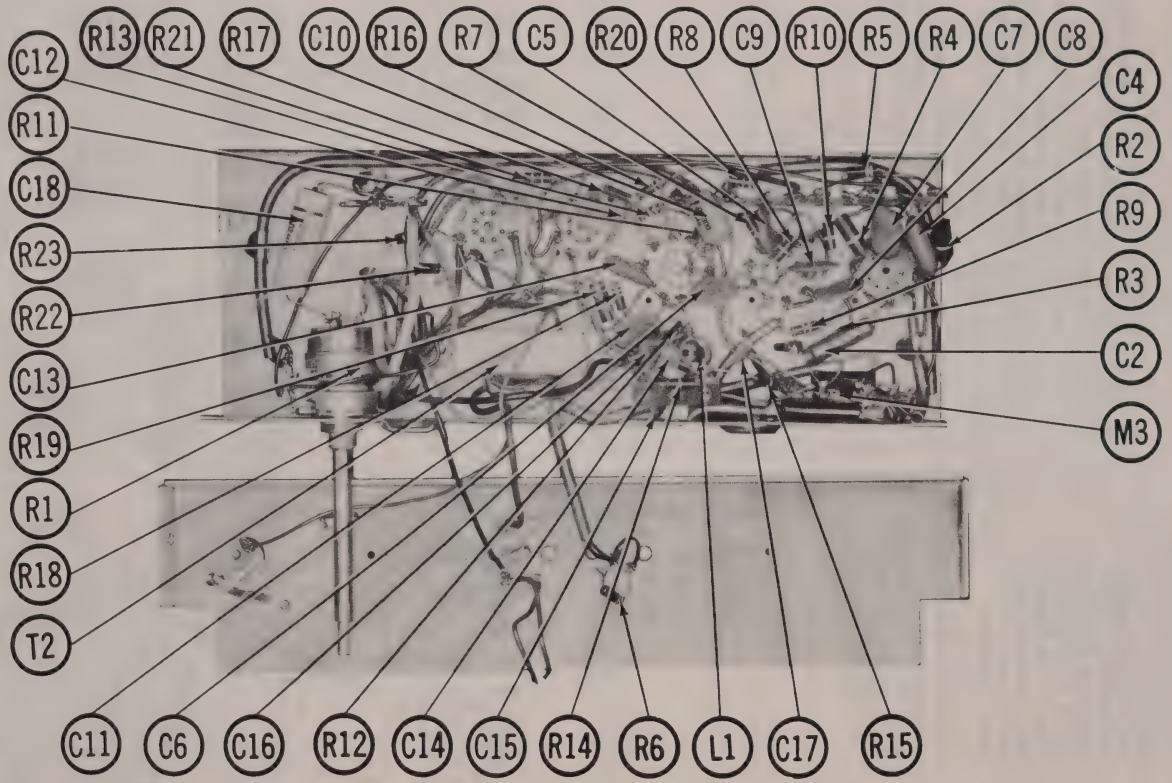
| Ref. No. | Part No. | Description |
|---|---|---|
| 60 | | Set Screw 6-32 x 3/16 Round |
| 61 | TA-265 | Upper Pulley Assembly |
| 62 | TA-1183 | Lower Pulley Assembly |
| 63 | | Part of Motor Assembly |
| 64 | TS-1630 | Spacer |
| 65 | TA-1205 | Motor Board Sub Plate |
| 66 | TB-879 | Rewind Stop Bracket |
| 67 | TH-515 | Excursion Limit Hook |
| 68 | TB-1061 | Motor Mounting Bracket |
| 69 | TM-407 | Motor Shock Mount |
| 70 | | No. 6 Washer, Flat |
| 71 | TS-1942 | Motor Spacer |
| 72 | TA-1448 | Motor Assembly |
| 73 | TA-1206 | Fan Assembly |
| 74 | | 8-32 x 3/16 Slotted Set Screw |
| 75 | TS-1270 | Drop Spacing Stud |
| 76 | TB-859 | Brake Rod Guide Bracket |
| 77 | TA-1128 | Brake Rod Sub Assembly |
| 78 | TB-998 | Takeup Belt |

| Ref. No. | Part No. | Description |
|---|---|---|
| 79* | TB-999* | *Rewind Belt |
| 80 | TB-858 | Brake Release Bracket |
| 81 | | No. 6 x 1/4 Sheet Metal Screw Type Z |
| 82 | TS-1658 | Brake Spring |
| 83 | TA-1121 | Wind-Rewind Lever Assembly |
| 84 | TA-1207 | Interlock Shaft Assembly |
| 85 | TS-2022 | Takeup Spring |
| 86 | TA-1122 | Capstan Roller Plate Cam Lever Assembly |
| 87 | TA-1004 | Switch Detent Lever Assembly |
| 88 | TS-1657 | Brake Rod Return Spring |
| 89 | TS-1681 | Capstan Roller Plate Lever Spring |
| 90 | TS-1625 | Interlock Slide |
| 91 | TB-1004 | Brake Cord (25" Long) |
| 92 | TS-1905 | Switch Detent Lever Spring |
| 93 | TA-1119 | Switch Shaft and Cam Assembly |
| 94 | | No. 6 Flat Washer |

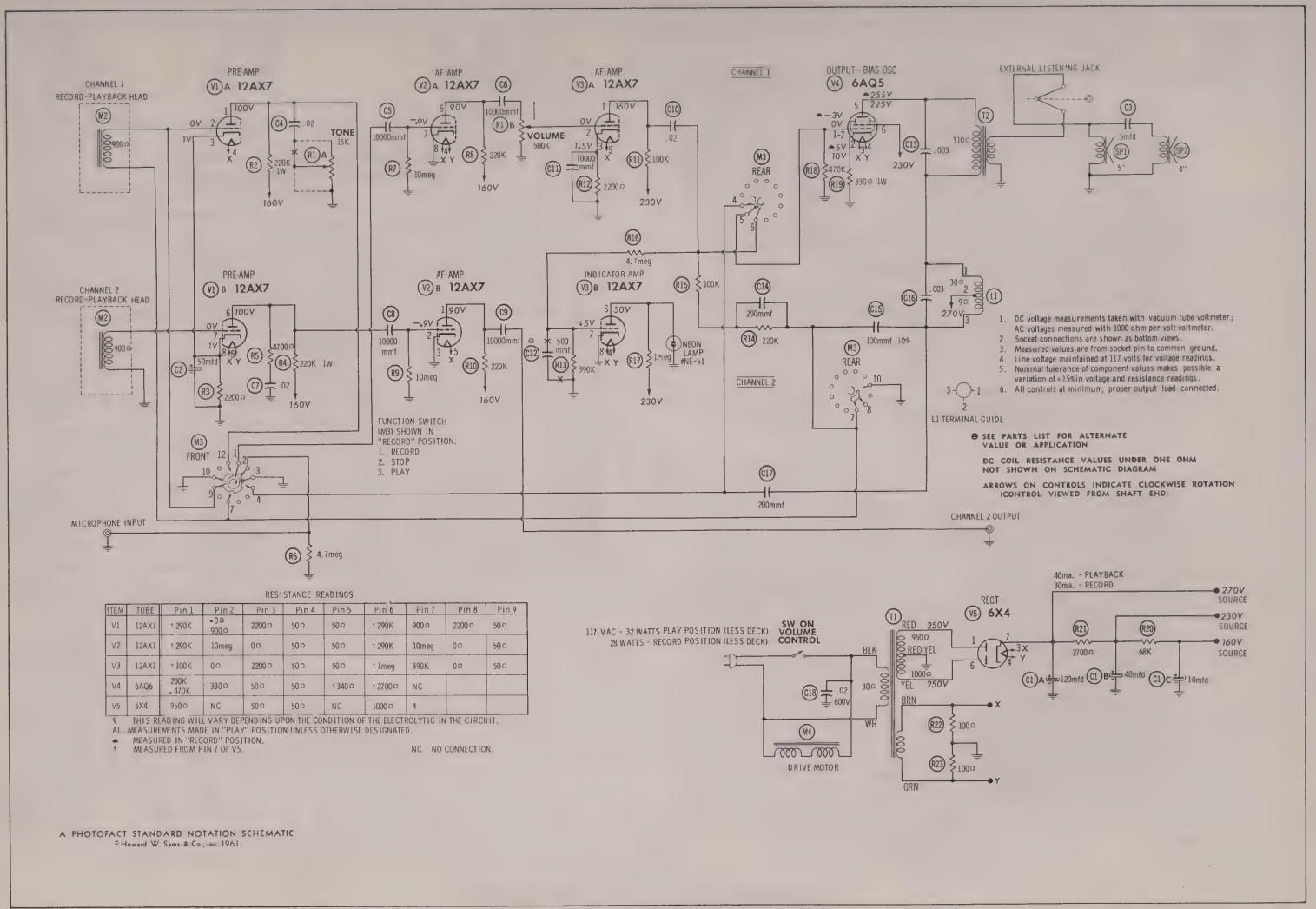
* Linear "O" Ring Drive Belt
Walsco Part No. 1410-14
* Rewind Belt, Walsco Part
No. 1409-04




AMPLIFIER CHASSIS - TOP VIEW




AMP CHASSIS - BOTTOM VIEW




RESISTANCE READINGS

| ITEM | TUBE | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| V1 | 12AX7 | †290K | •0Ω<br>900Ω | 2200Ω | 50Ω | 50Ω | †290K | 900Ω | 2200Ω | 50Ω |
| V2 | 12AX7 | †290K | 10meg | 0Ω | 50Ω | 50Ω | †290K | 10meg | 0Ω | 50Ω |
| V3 | 12AX7 | †100K | 0Ω | 2200Ω | 50Ω | 50Ω | †1meg | 390K | 0Ω | 50Ω |
| V4 | 6AQ6 | 200K<br>•470K | 330Ω | 50Ω | 50Ω | †340Ω | †2700Ω | NC | | |
| V5 | 6X4 | 950Ω | NC | 50Ω | 50Ω | NC | 1000Ω | ¶ | | |

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
ALL MEASUREMENTS MADE IN "PLAY" POSITION UNLESS OTHERWISE DESIGNATED.
• MEASURED IN "RECORD" POSITION.
† MEASURED FROM PIN 7 OF V5.
NC NO CONNECTION.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
©Howard W. Sams & Co., Inc. 1961

TELECTRO
MODEL 1975

# PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | USE | TYPE (• GENERAL ELECTRIC) | ITEM No. | USE | TYPE (• RAYTHEON • SYLVANIA) |
|---|---|---|---|---|---|
| V1 | Preamplifier | 12AX7 | V4 | Output-Bias Osc. | 6AQ5 |
| V2 | AF Amplifier | 12AX7 | V5 | Rectifier | 6X4 |
| V3 | AF Amp.-Indicator Amp. | 12AX7 | | | |

## ELECTROLYTIC CAPACITORS

| ITEM No. | RATING CAP. | RATING VOLT. | REPLACEMENT DATA TELECTRO PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | PYRAMID PART No. | SPRAGUE PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| C1A | 120 | 300 | TC-1969 | PR4-300 | BBRT0196 | WQ405 | CDBQ-1005 | TVA-3563 | |
| B | 40 | 300 | | | | | | | |
| C | 10 | 250 | | | | | | | |
| C2 | 50 | 3 | TC-1550 | PTT-3050 | NLW50-3 | TT6X50 | ML50-3 | TE-1058 | |
| C3 | 5 | 12 | TC-1718 | PTT-12005 | NLW5-15 | TT12X5 | ML5-12 | TE-1127 | |

## FIXED CAPACITORS

**Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|
| C4 | .02 300V | Note 1 | P488N-02 | DD-203 | CUB4S2 | 4DP-2-203 | GEM-412 | 4TM-S20 |
| C5 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C6 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C7 | .02 300V | | P488N-02 | DD-203 | CUB4S2 | 4DP-2-203 | GEM-412 | 4TM-S20 |
| C8 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C9 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C10 | .02 300V | | P488N-02 | DD-203 | CUB4S2 | 4DP-2-203 | GEM-412 | 4TM-S20 |
| C11 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C12 | 500 | | BPD-0005 | DD-501 | BYA10T5 | CCD-501 | B-350 | 10TS-T50 |
| C13 | .003 300V | | P488N-003 | D6-302 | CUB6D3 | 6DP-1-302 | GEM-623 | 6TM-D30 |
| C14 | 200 | | BPD-0002 | DD-201 | L10T2 | CCD-201 | GP320 | 10TS-T20 |
| C15 | 100 10% | | D1-100 | DD-101 | L10T1 | CCD-101 | GP310 | 10TS-T10 |
| C16 | .003 300V | | P488N-003 | D6-302 | CUB6D3 | 6DP-1-302 | GEM-623 | 6TM-D30 |
| C17 | 200 | | BPD-0002 | DD-201 | L10T2 | CCD-201 | GP320 | 10TS-T20 |
| C18 | .02 600V | | P688N-02 | DD-203 | CUB6S2 | 6DP-2-203 | GEM-612 | 6TM-S20 |

Note 1. Not used in some versions.

## CONTROLS

| ITEM No. | RATING RESISTANCE | RATING WATTS | REPLACEMENT DATA TELECTRO PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | CTS-IRC PART No. | MALLORY PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| R1A | 15K | | TC-1694 | F1-27 | | † QJ-1205R | ■ UE3905-S | Tone |
| B | 500K | | | R2-41 | | | | Volume |
| C | Switch | | | KR-1 | | | | Power Off-On |

† "CONCENTRIKIT" equivalent: K-6 Kit with base elements and shafts: B11-118, P13-217 (Panel)
(Not available as a factory assembled unit). B13-133, R1-300 (Rear)
76-1 (Switch)

■ "STA-LOC" equivalent: FA153L, RU55A, OS2562, IS3000, US41.

## RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

| ITEM No. | RATING | REMARKS |
|---|---|---|
| R2 | 220K 1W | |
| R3 | 2200Ω | |
| R4 | 220K 1W | |
| R5 | 4700Ω | |
| R6 | 4.7meg | |
| R7 | 10meg | |
| R8 | 220K | |
| R9 | 10meg | |

| ITEM No. | RATING | REMARKS |
|---|---|---|
| R10 | 220K | |
| R11 | 100K | |
| R12 | 2200Ω | |
| R13 | 390K | |
| R14 | 220K | |
| R15 | 100K | |
| R16 | 4.7meg | |
| R17 | 1meg | |

| ITEM No. | RATING | REMARKS |
|---|---|---|
| R18 | 470K | |
| R19 | 330Ω 1W | |
| R20 | 68K | |
| R21 | 2700Ω | |
| R22 | 100Ω | |
| R23 | 100Ω | |

## COILS (RF-IF)

| ITEM No. | USE | REPLACEMENT DATA TELECTRO PART No. | Merit PART No. | Miller PART No. | Stancor PART No. | NOTES |
|---|---|---|---|---|---|---|
| L1 | Bias Osc. Coil | TC-1510 | | | | |

## TRANSFORMER (POWER)

| ITEM No. | RATING PRI. | RATING SEC. 1 | RATING SEC. 2 | REPLACEMENT DATA TELECTRO PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| T1 | 117V @ .3A | 500V CT @ .040A DC | 6.3V @ 2A | TT-790 | | | | | |

## TRANSFORMER (AUDIO OUTPUT)

| ITEM No. | IMPEDANCE PRI. | IMPEDANCE SEC. | REPLACEMENT DATA TELECTRO PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|
| T2 | 5100Ω | 3-4Ω | TT-791 | A-2930 | A-3877 | 24S51 | S-3X | |

## SPEAKER

| ITEM No. | TYPE SIZE | TYPE FIELD | TYPE V. C. IMP. | REPLACEMENT DATA TELECTRO PART No. | QUAM PART No. | NOTES |
|---|---|---|---|---|---|---|
| SP1 | 5" | PM | 3-4Ω | TS-1926 | 5A1 | |
| SP2 | 4" | PM | 3-4Ω | TS-1927 | 4A07 | |

## MISCELLANEOUS

| ITEM No. | PART NAME | TELECTRO PART No. | NOTES |
|---|---|---|---|
| M1 | Head Ass'y. | TA-1123 | Erase |
| M2 | Head Ass'y. | TH-584 | Record-Play (1/4 Track Stereo) |
| M3 | Switch | | Function (Rotary Wafer) |
| M4 | Motor Ass'y. | TA-1448 | Includes Pulley |
| | Fan Ass'y. | TA-1206 | |
| | Microphone & Plug | TM-316 | |

## CABINETS & CABINET PARTS

**(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)**

| NAME | PART NO. | DESCRIPTION |
|---|---|---|
| Knob | TA-1426 | Function Selector |
| Knob | TA-1427 | Record |
| Knob | TK-256-1 | Head Lifting |
| Knob | TK-243-1 | Wind-Rewind |
| Knob | TA-1428 | Volume |
| Knob | TK-241-1 | Tone |
| Cabinet | TC-1990-SHC-2 | With Cover |

## WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors
Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting) .....Use BELDEN No. 8401
Phono Pick-up Arm Cable ..... Use BELDEN No. 8430 (Two Conductor - Twisted)

PHOTOFACT® Folder with CIRCUITRACE®

# WEBCOR MODEL EP-2008-1, EP-4008-1

WEBCOR MODEL
EP-2008-1, EP-4008-1

WEBCOR MODEL
EP-2008-1, EP-4008-1

| | |
|---|---|
| TRADE NAME | Webcor Models EP-2008-1; EP-4008-1 (External Speaker Unit) |
| MANUFACTURER | Webcor, Inc., 5610 W. Bloomingdale Ave., Chicago 39, Illinois |
| TYPE SET | AC Operated 7 Tube Stereo Tape Recorder |
| POWER SUPPLY | 110 – 120 Volts AC, 60 Cycles RATING 61 Watts, .6 Amp. @117 Volts AC (Less Tape Deck) |

FOR SERVICE INFORMATION ON TAPE DECK – SEE SIMILAR WEBCOR 2810 – PHOTOFACT SET 458 FOLDER 17

## MISCELLANEOUS ADJUSTMENTS

RECORD LEVEL INDICATOR ADJUSTMENT

1. Place unit in Record position with Speed Selector set at 7 1/2 ips.
2. Inject 1000∿ signal at Input Jack thru 22K.
3. Connect AC probe of VTVM to point Ⓐ. Connect common to B-.
4. Adjust the tape recorder Volume control and signal generator output for 10VAC on VTVM.
5. Adjust Record Level (R3) until the indicator just closes.

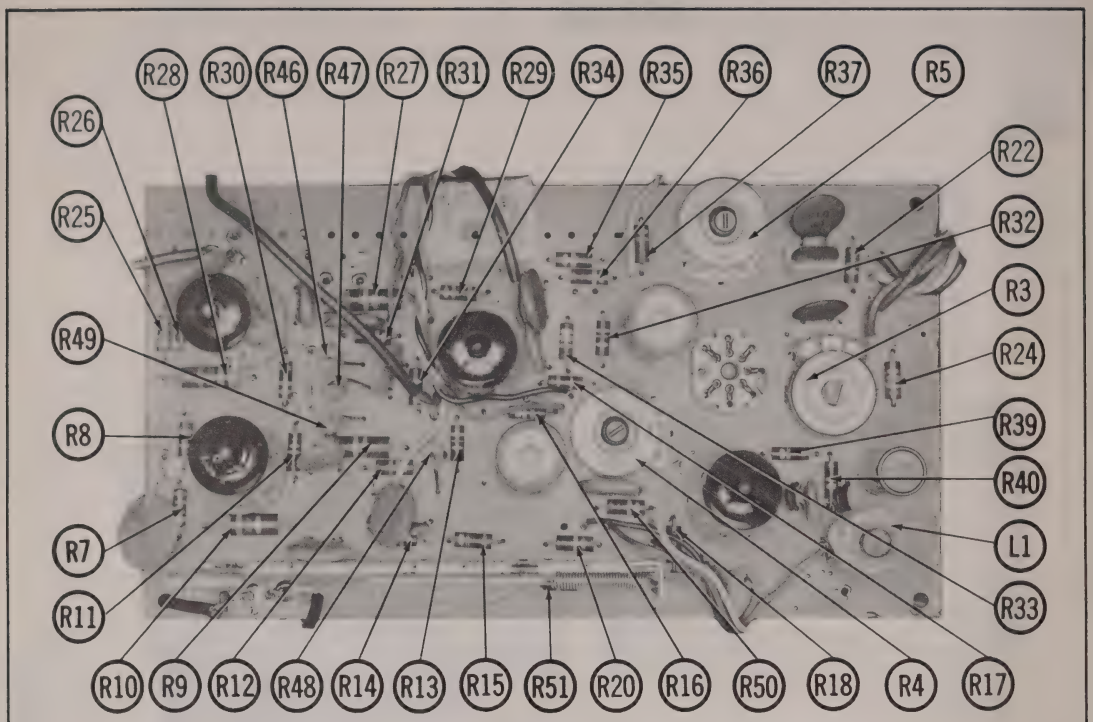
HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

KQ131



SET 518 FOLDER 17

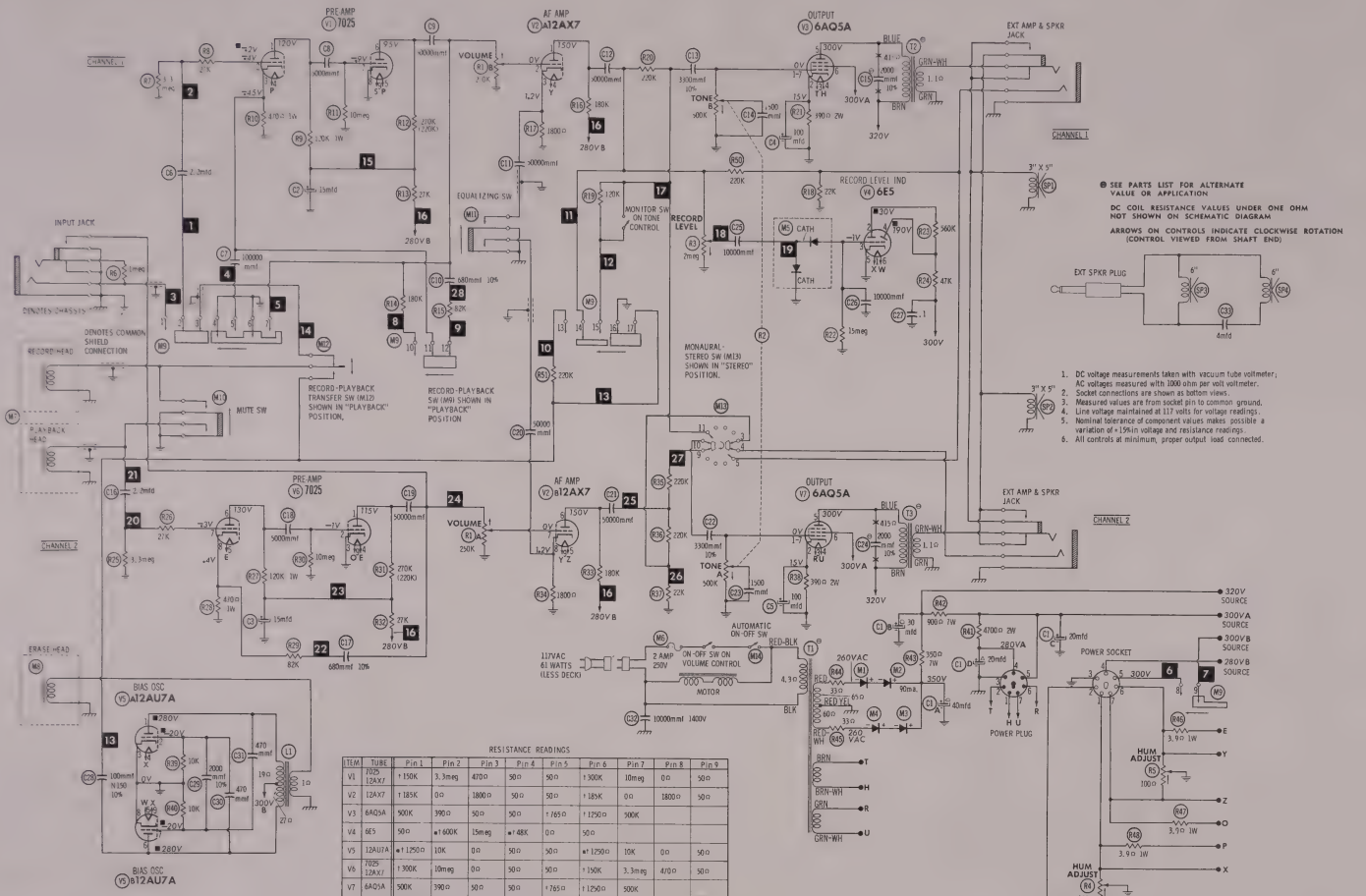



PRINTED BOARD—RESISTOR IDENTIFICATION

A Howard W. Sams CIRCUITRACE® Photo

PRINTED BOARD

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED




1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

RESISTANCE READINGS

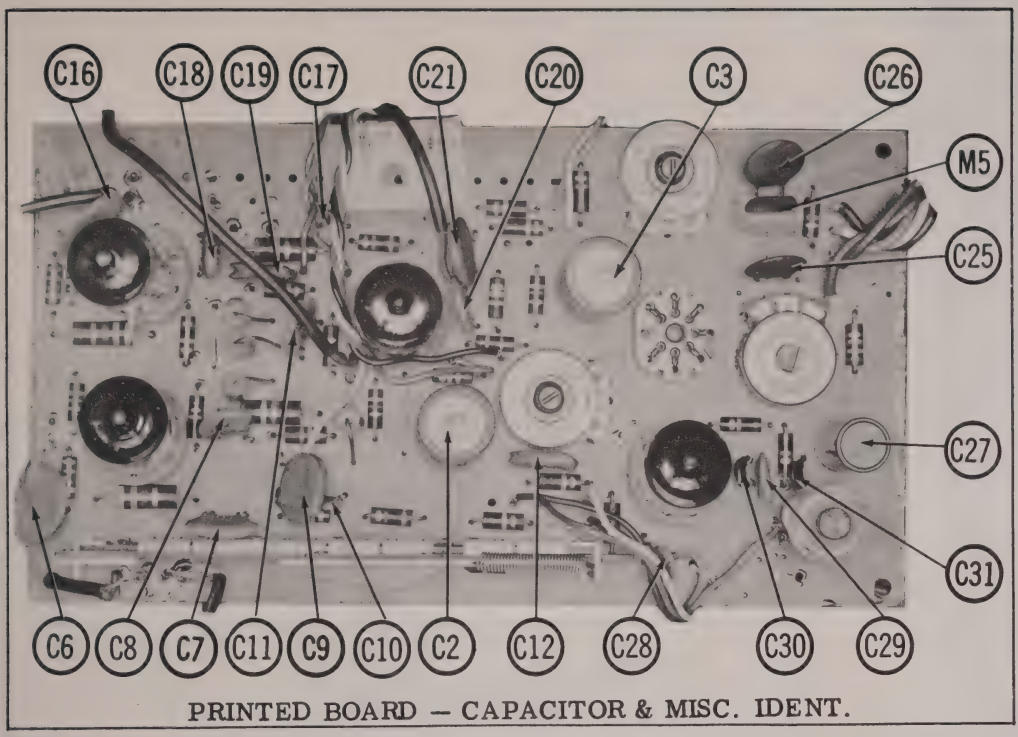
| ITEM | TUBE | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| V1 | 7025 12AX7 | †150K | 3.3meg | 470Ω | 50Ω | 50Ω | †300K | 10meg | 0Ω | 50Ω |
| V2 | 12AX7 | †185K | 0Ω | 1800Ω | 50Ω | 50Ω | †185K | 0Ω | 1800Ω | 50Ω |
| V3 | 6AQ5A | 500K | 390Ω | 50Ω | 50Ω | †765Ω | †1250Ω | 500K | | |
| V4 | 6E5 | 50Ω | ■†600K | 15meg | ■†48K | 0Ω | 50Ω | | | |
| V5 | 12AU7A | ■†1250Ω | 10K | 0Ω | 50Ω | 50Ω | ■†1250Ω | 10K | 0Ω | 50Ω |
| V6 | 7025 12AX7 | †300K | 10meg | 0Ω | 50Ω | 50Ω | †150K | 3.3meg | 470Ω | 50Ω |
| V7 | 6AQ5A | 500K | 390Ω | 50Ω | 50Ω | †765Ω | †1250Ω | 500K | | |

ALL MEASUREMENTS MADE IN "PLAY" POSITION UNLESS OTHERWISE DESIGNATED.
■ MEASURED IN "RECORD" POSITION.
† MEASURED FROM OUTPUT OF M2.

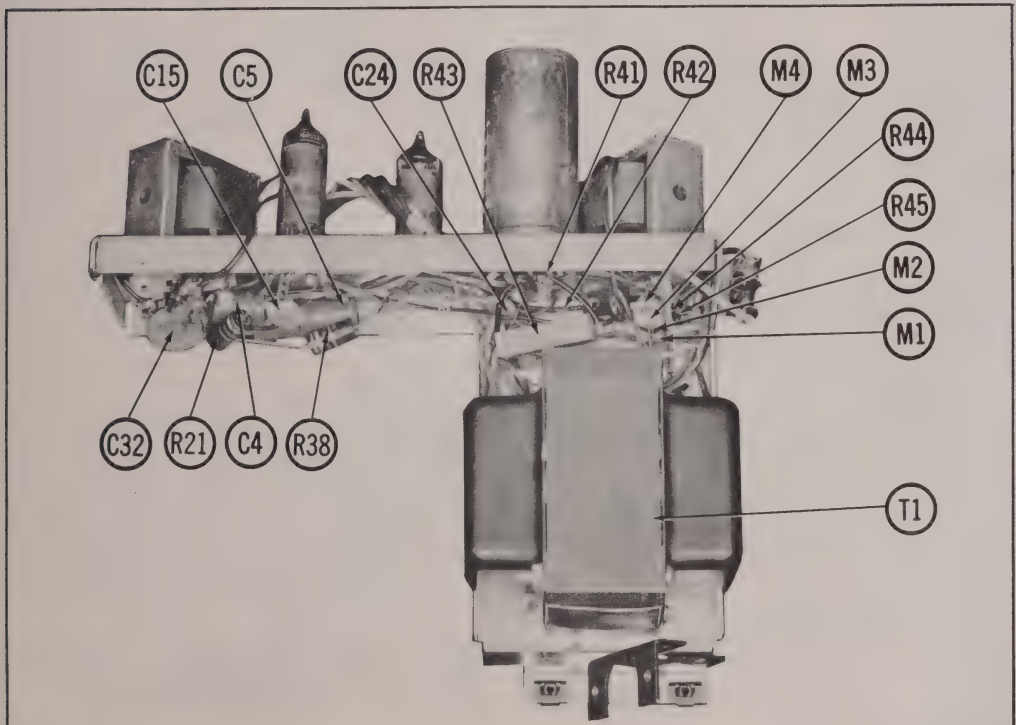
A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE®

©Howard W. Sams & Co., Inc. 1961

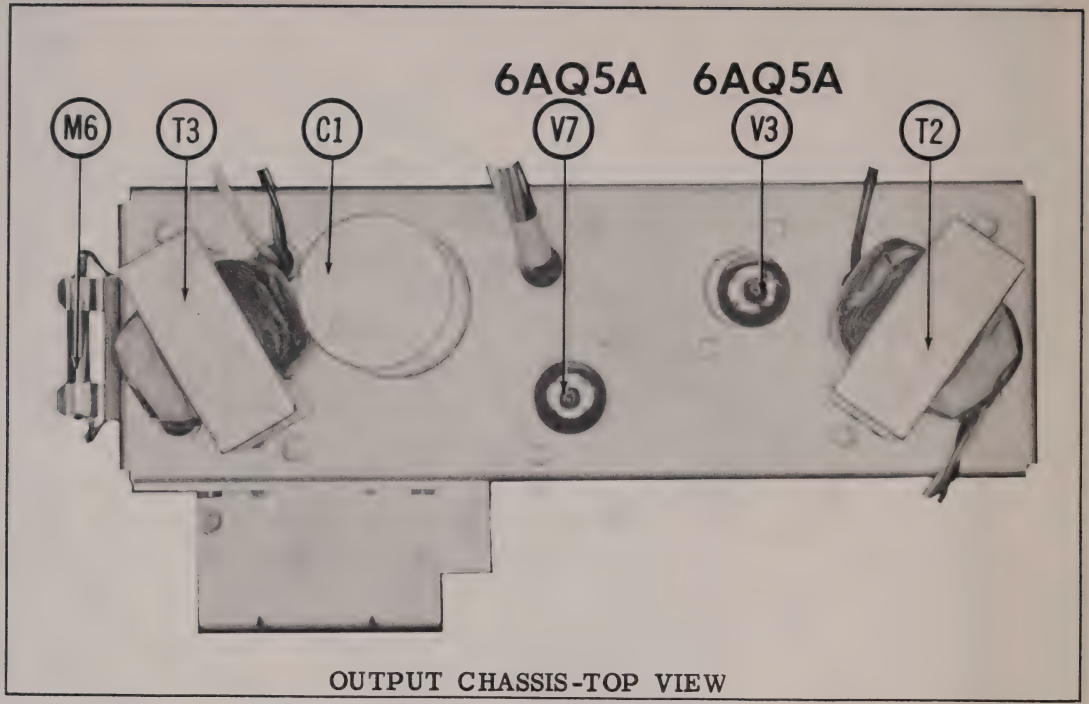
**WEBCOR MODEL EP-2008-1, EP-4008-1**



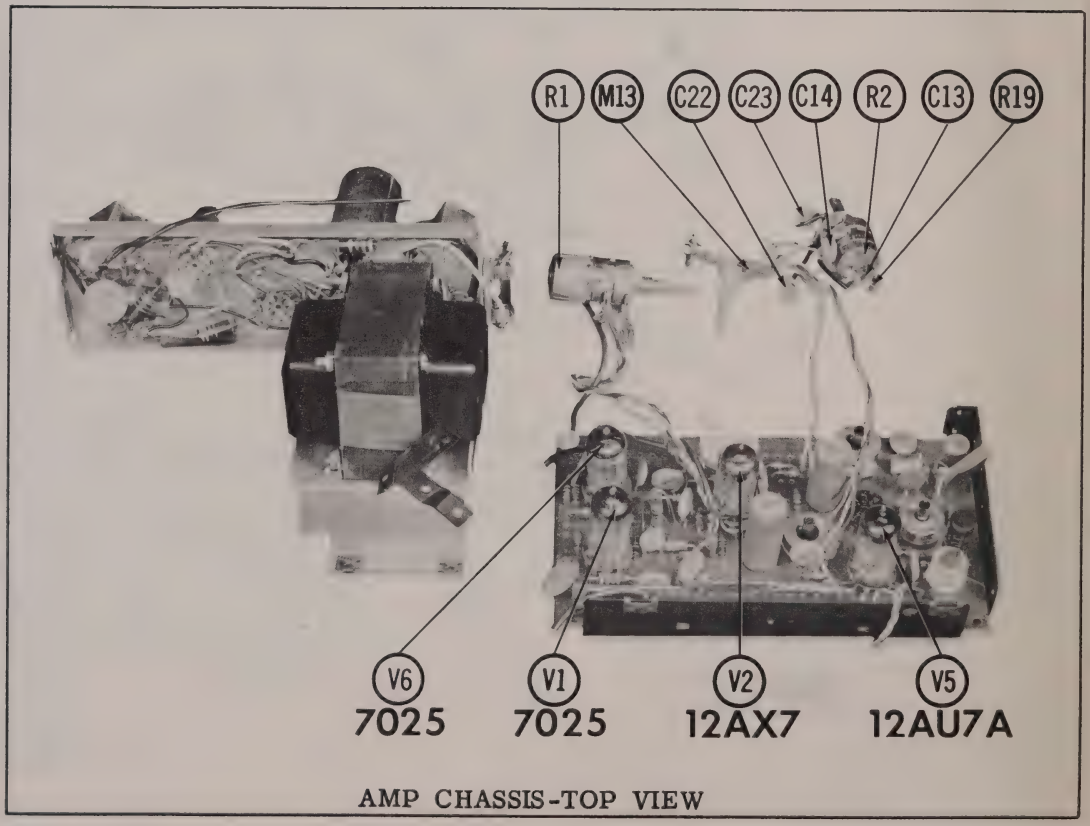

PRINTED BOARD – CAPACITOR & MISC. IDENT.




POWER CHASSIS – BOTTOM VIEW




OUTPUT CHASSIS-TOP VIEW




AMP CHASSIS-TOP VIEW

# PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | USE | TYPE | ITEM No. | USE | TYPE |
|---|---|---|---|---|---|
| V1 | Channel 1 Preamp. | 7025/12AX7 | V4 | Record Level Indicator | 6E5 |
| V2 | Channel 1 AF Amp. - Channel 2 AF Amp. | 12AX7 | V5 | Bias Oscillator | 12AU7A |
| | | | V6 | Channel 2 Preamp. | 7025/12AX7 |
| V3 | Channel 1 Output | 6AQ5A | V7 | Channel 2 Output | 6AQ5A |

GENERAL ELECTRIC • RAYTHEON • SYLVANIA •

## ELECTROLYTIC CAPACITORS

| ITEM No. | RATING CAP. | RATING VOLT. | WEBCOR PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | PYRAMID PART No. | SPRAGUE PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| C1A | ▲40 | 450 | 30P398 | AFH4-15-30 | D0144 | FP444.95 | TMT-3739 | TVL-4769.4 | |
| B | ■30 | 450 | | | | | TD-20-450 | | |
| C | 20 | 450 | | | | | | | |
| D | ▲20 | 450 | | | | | | | |
| C2 | 15 | 300 | 30P281 | PRS1640 | BR1635 | TC64 | TD-16-350 | TVA-1607 | |
| C3 | 15 | 300 | 30P281 | PRS1640 | BR1635 | TC64 | TD-16-350 | TVA-1607 | |
| C4 | 100 | 25 | 30P399 | PRS1270 | BBR100-25 | TC2501 | TD-100-25 | TVA-1207 | |
| C5 | 100 | 25 | 30P399 | PRS1270 | BBR100-25 | TC2501 | TD-100-25 | TVA-1207 | |

## FIXED CAPACITORS

**Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|
| C6 | 2.2mfd 3V | #30P404 | | UK-225 | | | | HY-150 |
| C7 | 100000 50V | | | DDA-104 | H-05P1 | 10DP-2-104 | TA-010 | TG-P10 |
| C8 | 5000 | | BPD-005 | DD-502 | BYA10D5 | CCD-502 | B-250 | 5HK-D50 |
| C9 | 50000 | | BPD-05 | DD-503 | CUB4S5 | 4DP-3-503 | GP150 | 5HK-S50 |
| C10 | 680 10% | | DI-680 | DD-681 | 5R5T68 | CCD-681 | GP368 | 10TS-T68 |
| C11 | 50000 | | BPD-05 | DD-503 | CUB4S5 | 4DP-3-503 | GP150 | 5HK-S50 |
| C12 | 50000 | | BPD-05 | DD-503 | CUB4S5 | 4DP-3-503 | GP150 | 5HK-S50 |
| C13 | 3300 10% | | DI-3300 | | PM6D33 | CCD-332 | JL-233 | 10TS-D33 |
| C14 | 1500 | | BPD-0015 | DD-152 | BYA10D15 | CCD-152 | B-215 | 5HK-D15 |
| C15 | 2000 10% | Note 1 | DI-2000 | | PM6D2 | CCD-202 | GP220 | 10TS-D20 |
| C16 | 2.2mfd 3V | #30P404 | | UK-225 | | | | HY-150 |
| C17 | 680 10% | | DI-680 | DD-681 | 5R5T68 | CCD-681 | GP368 | 10TS-T68 |
| C18 | 5000 | | BPD-005 | DD-502 | BYA10D5 | CCD-502 | B-250 | 5HK-D50 |
| C19 | 50000 | | BPD-05 | DD-503 | CUB4S5 | 4DP-3-503 | GP150 | 5HK-S50 |
| C20 | 50000 | | BPD-05 | DD-503 | CUB4S5 | 4DP-3-503 | GP150 | 5HK-S50 |
| C21 | 50000 | | BPD-05 | DD-503 | CUB4S5 | 4DP-3-503 | GP150 | 5HK-S50 |
| C22 | 3300 10% | | DI-3300 | | PM6D33 | CCD-332 | JL-233 | 10TS-D33 |
| C23 | 1500 | | BPD-0015 | DD-152 | BYA10D15 | CCD-152 | B-215 | 5HK-D15 |
| C24 | 2000 10% | Note 1 | DI-2000 | | PM6D2 | CCD-202 | GP220 | 10TS-D20 |
| C25 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C26 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C27 | .1 400V | | P4151N-1 | DF-104 | BC6P1J | 4DP-3-104 | ACE-401 | 4SE-P10 |
| C28 | 100 N150 10% | #30P308 | | | | * | | 10TCP-T10 |
| C29 | 2000 10% | | DI-2000 | | PM6D2 | CCD-202 | GP220 | 10TS-D20 |
| C30 | 470 | | DI-470 | DD-471 | BYA10T47 | CCD-471 | B-347 | 10TS-T47 |
| C31 | 470 | | DI-470 | DD-471 | BYA10T47 | CCD-471 | B-347 | 10TS-T47 |
| C32 | 10000 1400V | | DAC-27 | DD16-103 | HVE16S1 | 16DP-3-103 | UAC-110 | BL-S10 |
| C33 | 4mfd 25V | | P123ZNN-4.0 | | | | | |

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
# Webcor Part Number.
Note 1. Not used in some versions.

## CONTROLS

| ITEM No. | RATING RESISTANCE | RATING WATTS | REPLACEMENT DATA WEBCOR PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | CTS-IRC PART No. | MALLORY PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| R1A | 250K | | 31P173 | F1-35 | | | | Volume, Channel 2 |
| B | 250K | | | R2-35 | | † QJ-1290R | ■ UE4180-S | Volume, Channel 1 |
| C | Switch | | | KR-1 | | | | Power Off-On |
| R2A | 500K | | 31P174 | | | | | Tone, Channel 2 |
| B | 500K | | | | | | | Tone, Channel 1 |
| C | Switch | | | | | | | Monitor |
| R3 | 2meg | | 31P122 | | | | | Record Level |
| R4 | 100Ω | | 31P176 | | | | | Hum Adjust, Channel 1 |
| R5 | 100Ω | | 31P176 | | | | | Hum Adjust, Channel 2 |

† "CONCENTRIKIT" equivalent: K-6 Kit with base elements and shafts: B13-130, P21-029 (Panel)
(Not available as a factory assembled unit). B13-130, R16-106 (Rear)
■ "STA-LOC" equivalent: FA-254A, RU254A, OF937, IS1312, US41. 76-1 (Switch)

## RESISTORS (IRC or EQUIVALENT)

**All wattages 1/2 watt, or less, unless otherwise listed.**

| ITEM No. | RATING | REMARKS |
|---|---|---|
| R6 | 1meg | |
| R7 | 3.3meg | |
| R8 | 27K | |
| R9 | 120K 1W | |
| R10 | 470Ω 1W | |
| R11 | 10meg | |
| R12 | 270K | (220K) * |
| R13 | 27K | |
| R14 | 180K | |
| R15 | 82K | |
| R16 | 180K | |
| R17 | 1800Ω | |
| R18 | 22K | |
| R19 | 120K | |
| R20 | 220K | |
| R21 | 390Ω 2W | |

| ITEM No. | RATING | REMARKS |
|---|---|---|
| R22 | 15meg | |
| R23 | 560K | |
| R24 | 47K | |
| R25 | 3.3meg | |
| R26 | 27K | |
| R27 | 120K 1W | |
| R28 | 470Ω 1W | |
| R29 | 82K | |
| R30 | 10meg | |
| R31 | 270K | (220K) * |
| R32 | 27K | |
| R33 | 180K | |
| R34 | 1800Ω | |
| R35 | 220K | |
| R36 | 220K | |
| R37 | 22K | |

| ITEM No. | RATING | REMARKS |
|---|---|---|
| R38 | 390Ω 2W | |
| R39 | 10K | |
| R40 | 10K | |
| R41 | 4700Ω 2W | |
| R42 | 900Ω 7W | IRC#PW10-900Ω |
| R43 | 350Ω 7W | IRC#PW10-350Ω |
| R44 | 33Ω | |
| R45 | 33Ω | |
| R46 | 3.9Ω 1W | |
| R47 | 3.9Ω 1W | |
| R48 | 3.9Ω 1W | |
| R49 | 3.9Ω 1W | |
| R50 | 220K | |
| R51 | 220K | |

* Alternate Value.

## COILS (RF-IF)

| ITEM No. | USE | REPLACEMENT DATA WEBCOR PART No. | Merit PART No. | Miller PART No. | Stancor PART No. | NOTES |
|---|---|---|---|---|---|---|
| L1 | Bias Osc. Coil | 65P125 | | | | |

## TRANSFORMER (POWER)

| ITEM No. | RATING PRI. | SEC. 1 | SEC. 2 | REPLACEMENT DATA WEBCOR PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No | Triad PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| T1 | 117V @ .6A | 520VCT @ .090A | 6.3VAC @ 1.4A | 68P086-1 ① | | | | | ① Alternate Part # 68P086 |
| | SEC. 3 | SEC. 4 | SEC. 5 | | | | | | |
| | 6.3VAC @ 1.1A | | | | | | | | |

# PARTS LIST AND DESCRIPTIONS (Continued)

## TRANSFORMER (AUDIO OUTPUT)

| ITEM No. | IMPEDANCE PRI. | IMPEDANCE SEC. | REPLACEMENT DATA WEBCOR PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|
| T2 | 5100Ω | 6-8Ω | 67P087-1 ① | A-2902 | A-3337 | 24S07 | S-53X | ① Alternate Part #67P087. |
| T3 | 5100Ω | 6-8Ω | 67P087-1 ① | A-2902 | A-3337 | 24S07 | S-53X | |

## SPEAKER

| ITEM No. | TYPE SIZE | TYPE FIELD | TYPE V. C. IMP. | REPLACEMENT DATA WEBCOR PART No. | QUAM PART No. | NOTES |
|---|---|---|---|---|---|---|
| SP1 | 3"x 5" | PM | 6-8Ω | 76P089 | 35A05Z8 | |
| SP2 | 3"x 5" | PM | 6-8Ω | 76P089 | 35A05Z8 | |
| SP3 | 6" | PM | 14-16Ω | 76P082-2 | 6A1Z16 | |
| SP4 | 6" | PM | 6-8Ω | 76P105 | 6A2IZ8 | |

## POWER RECTIFIERS

| ITEM No. | RATING CURRENT (Measured) | REPLACEMENT DATA WEBCOR PART No. | RCA PART No. | SARKES TARZIAN PART No. | SYLVANIA PART No. | NOTES |
|---|---|---|---|---|---|---|
| M1 | .090A | 65P155 * | 1N1763 * | F-4 * | SR500 * | * Silicon Diode |
| M2 | .090A | 65P155 * | 1N1763 * | F-4 * | SR500 * | |
| M3 | .090A | 65P155 * | 1N1763 * | F-4 * | SR500 * | |
| M4 | .090A | 65P155 * | 1N1763 * | F-4 * | SR500 * | |

## SIGNAL DIODES

| ITEM No. | ORIG. TYPE | REPLACEMENT DATA WEBCOR PART No. | GENERAL ELECTRIC PART No. | RAYTHEON PART No. | SYLVANIA PART No. | NOTES |
|---|---|---|---|---|---|---|
| M5 | | 65P124-2 ♦ | 6GD1 ♦ | | | ♦ Dual Selenium Diode |

## FUSES

| ITEM No. | TYPE | RATING | REPLACEMENT DATA WEBCOR PART No. FUSE | WEBCOR PART No. HOLDER | LITTELFUSE PART No. FUSE | LITTELFUSE PART No. HOLDER | BUSS PART No. FUSE | BUSS PART No. HOLDER |
|---|---|---|---|---|---|---|---|---|
| M6 | 3AG | 2A 250V | 33P004 | | 312002 (3AG 2A 250V) | 357001 | AGC 2 | 4405 |

## MISCELLANEOUS

| ITEM No. | PART NAME | WEBCOR PART No. | NOTES |
|---|---|---|---|
| M7 | Head | 65P160 | 1/4 Track Record-Playback |
| M8 | Head | 11X1956 | Erase |
| M9 | Switch | 32P152 | Record-Playback (Slide Type) |
| M10 | Switch | 32P147 | Muting |
| M11 | Switch | 32P153 | Equalizing |
| M12 | Switch | 32P154 | Record-Playback Transfer |
| M13 | Switch | 32P155 | Selector (Rotary Wafer) |
| M14 | Switch | 32P156-2 | Automatic Shut-off |

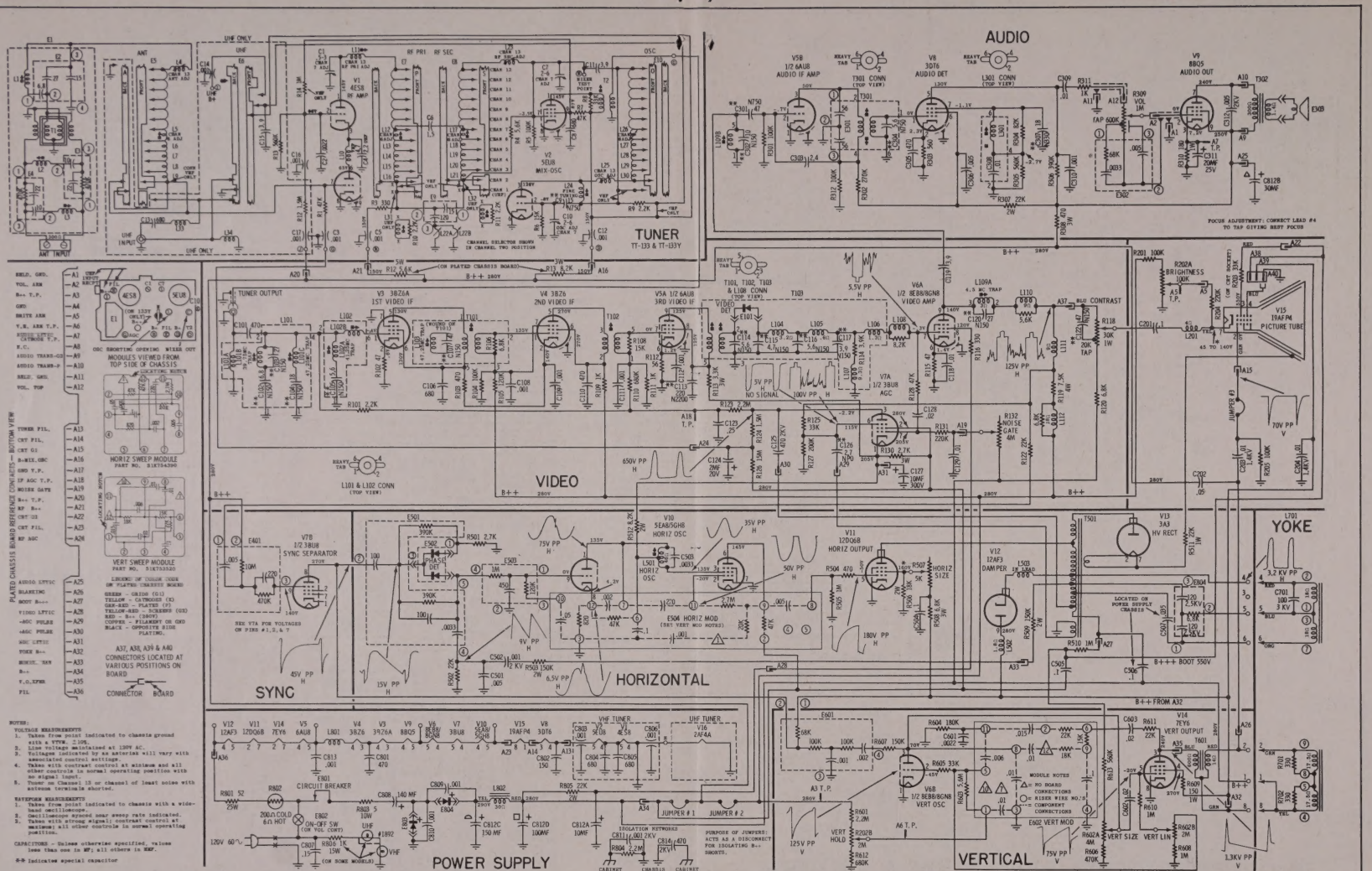
## CABINETS & CABINET PARTS

**(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)**

| NAME | PART NO. | DESCRIPTION |
|---|---|---|
| Knob | 39P241-2 | Volume #1 |
| Knob | 39P242-1 | Volume #2 |
| Knob | 39P241-1 | Tone, Function |
| Knob | 39P193-2 | Track Selector |
| Cabinet | 80X227-3 | Portable Assemble |
| Cabinet | 11X2388 | Body Assembly, Includes All Rivited, Staked, & Glued Parts |
| Handle | 39P233 | |

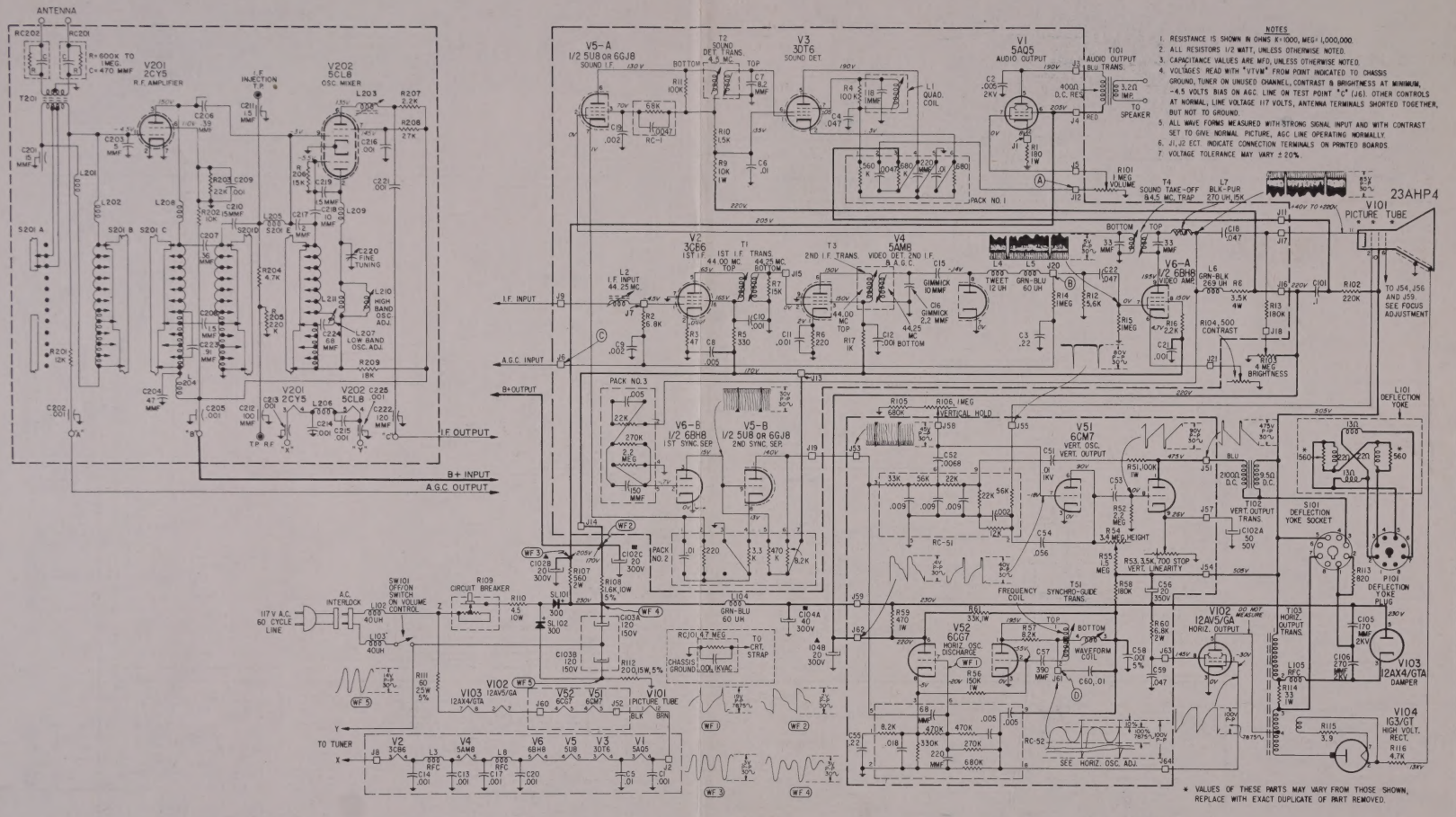
## WIRING DATA

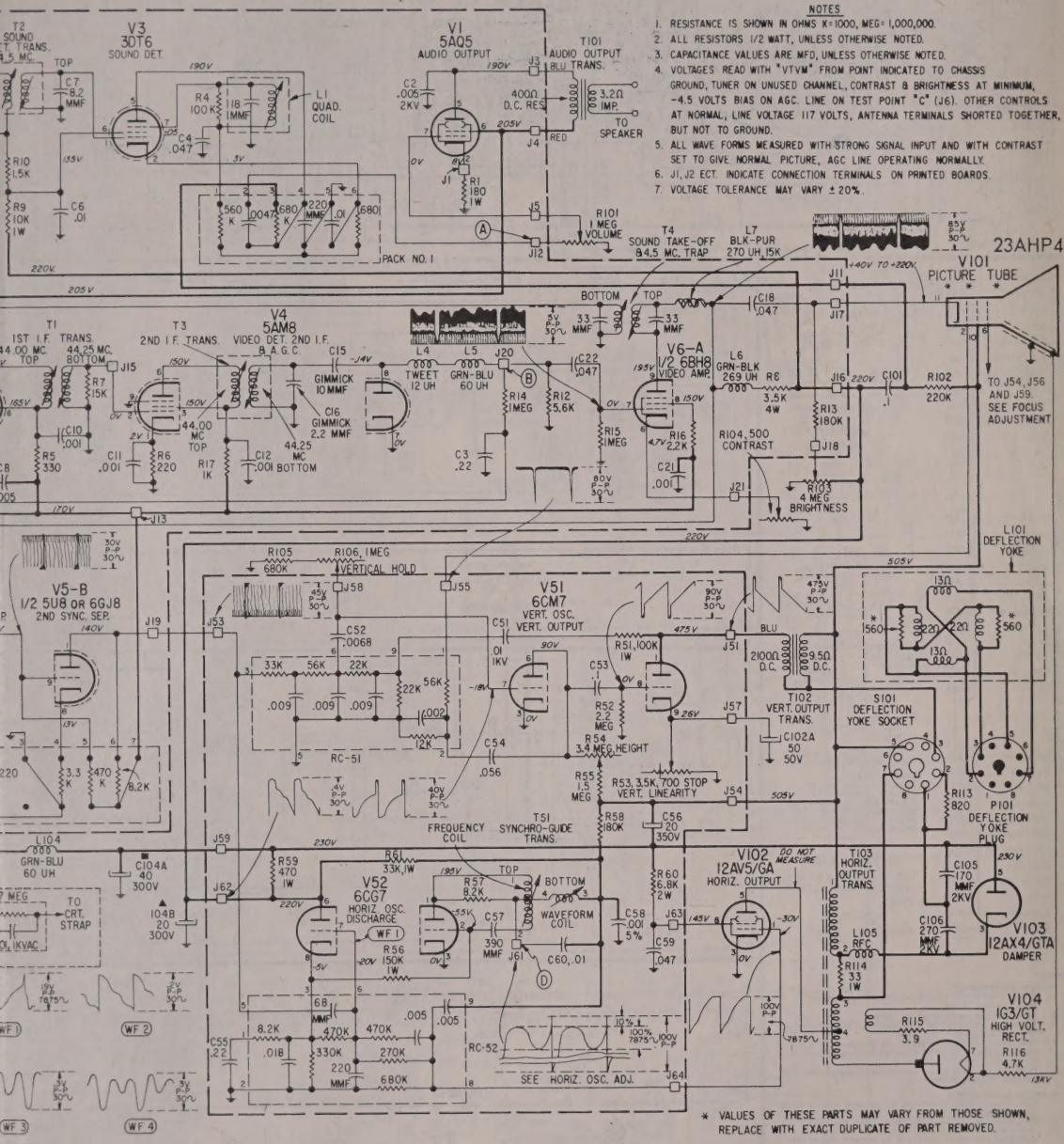
| | |
|---|---|
| General-use Unshielded Hook-up Wire | Use BELDEN No. 8530 (Solid) Available in Ten Colors<br>8524 (Stranded) Available in Ten Colors |
| Power Cord | Use BELDEN No. 1765-B (6 Ft. Length)<br>1725-K (7½ Ft. Length) |
| Low-Loss Shielded Lead (Interconnecting) | Use BELDEN No. 8401 |
| Phono Pick-up Arm Cable | Use BELDEN No. 8430 (Two Conductor - Twisted) |




MOTOROLA CHASSIS STS-435, Y, TS-435, Y, WTS-435

Schematic Diagram Courtesy of Motorola Inc.


ANTENNA
V201 2CY5 R.F. AMPLIFIER
V202 5CL8 OSC. MIXER
V201 2CY5
V202 5CL8
V5-A 1/2 5U8 OR 6GJ8 SOUND I.F.
V3 30T6 SOUND DET.
V1 5A05 AUDIO OUTPUT
V2 3CB6 1ST I.F.
V4 5AM8 VIDEO DET. 2ND I.F. A.G.C.
V5-B 1/2 5U8 OR 6GJ8 2ND. SYNC. SEP.
V6-A 1/2 6BH8 VIDEO AMP.
V5-B 1/2 6BH8 1ST. SYNC. SEP.
V51 6CM7 VERT. OSC. VERT. OUTPUT
V52 6CG7 HORIZ. OSC. DISCHARGE
V102 12AV5/GA HORIZ. OUTPUT
V103 12AX4/GTA DAMPER
V104 1G3/GT HIGH VOLT. RECT.
V101 PICTURE TUBE
23AHP4
I.F. INPUT
A.G.C. INPUT
B+ OUTPUT
I.F. OUTPUT
B+ INPUT
A.G.C. OUTPUT
TO TUNER
TO SPEAKER
TO J54, J56 AND J59 SEE FOCUS ADJUSTMENT
S201 A S201 B S201 C S201D
L201 L202 L203 L204 L205 L206 L207 L208 L209 L210 L211
T201 T1 T2 T3 T4
L1 QUAD. COIL
L2 I.F. INPUT 44.25 MC.
L3 L4 L5 L6 L7
L101 DEFLECTION YOKE
L102 L103 L104 L105
S101 DEFLECTION YOKE SOCKET
P101 DEFLECTION YOKE PLUG
SW101 OFF/ON SWITCH ON VOLUME CONTROL
R109 CIRCUIT BREAKER
117 V A.C. 60 CYCLE LINE
A.C. INTERLOCK
R101 1 MEG VOLUME
R102 220K
R103 180K
R104 500 CONTRAST
R105 680K VERTICAL HOLD
R106 1 MEG
R111 80 25W 5%
R112 200 1/5W 5%
R113 820
R114 33 1W
R115 3.9
R116 4.7K
R51 100K 1W
R52 2.2 MEG HEIGHT
R53 3.5K 700 STOP VERT. LINEARITY
R54 3.5 MEG
R55 1.5 MEG
R56 150K 1W
R57 8.2K
R58 180K
R59 470 1W
R60 6.8K 2W
R61 33K 1W
R101 1 MEG VOLUME
R102 220K
R103 180K
R104 500 CONTRAST
4 MEG BRIGHTNESS
FREQUENCY COIL
SYNCHRO-GUIDE TRANS.
WAVEFORM COIL
CHASSIS GROUND
TO CRT STRAP
PACK NO. 1
PACK NO. 2
PACK NO. 3
RC-1
RC-51
RC-52
SEE HORIZ. OSC. ADJ.
TP RF
TP I.F.
PICTURE TUBE
BLK BRN
BLU BLU
RED
GRN-BLU 60 UH
GRN-BLK 269 UH
BLK-PUR 270 UH
VERTICAL OUTPUT TRANS.
HORIZ. OUTPUT TRANS.
AUDIO OUTPUT TRANS.
SOUND TAKE-OFF 4.5 MC. TRAP
VIDEO AMP.
HIGH BAND OSC. ADJ.
LOW BAND OSC. ADJ.
FINE TUNING
CRT. SOCKET
CRT. SHIELD
CRT. FOCUS
CRT. ION TRAP
CRT. DEFLECTION YOKE
CRT. HEATER
CRT. CATHODE
CRT. GRID
CRT. ANODE
CRT. FILAMENT
CRT. SCREEN
CRT. GUN
CRT. BEAM
CRT. DEFLECTION
CRT. ION TRAP
CRT. FOCUS
CRT. SHIELD
CRT. SOCKET


NOTES
1. RESISTANCE IS SHOWN IN OHMS K=1000, MEG=1,000,000.
2. ALL RESISTORS 1/2 WATT, UNLESS OTHERWISE NOTED.
3. CAPACITANCE VALUES ARE MFD, UNLESS OTHERWISE NOTED.
4. VOLTAGES READ WITH "VTVM" FROM POINT INDICATED TO CHASSIS GROUND, TUNER ON UNUSED CHANNEL, CONTRAST & BRIGHTNESS AT MINIMUM, -4.5 VOLTS BIAS ON AGC. LINE ON TEST POINT "C" (J6). OTHER CONTROLS AT NORMAL, LINE VOLTAGE 117 VOLTS, ANTENNA TERMINALS SHORTED TOGETHER, BUT NOT TO GROUND.
5. ALL WAVE FORMS MEASURED WITH STRONG SIGNAL INPUT AND WITH CONTRAST SET TO GIVE NORMAL PICTURE, AGC LINE OPERATING NORMALLY.
6. J1, J2 ECT. INDICATE CONNECTION TERMINALS ON PRINTED BOARDS.
7. VOLTAGE TOLERANCE MAY VARY ± 20%.
V3 3DT6 SOUND DET.
V1 5AQ5 AUDIO OUTPUT
T101 AUDIO OUTPUT TRANS.
T2 SOUND I.F. TRANS. 4.5 MC.
T4 SOUND TAKE-OFF 84.5 MC. TRAP
L7 BLK-PUR 270 UH, 15K
23AHP4
V101 PICTURE TUBE
T1 1ST I.F. TRANS. 44.00 MC. TOP
T3 2ND I.F. TRANS. 44.25 MC. BOTTOM
V4 5AM8 VIDEO DET. 2ND I.F. & A.G.C.
V6-A 1/2 6BH8 VIDEO AMP.
L6 GRN-BLK 269 UH
R103 4 MEG BRIGHTNESS
R104, 500 CONTRAST
V5-B 1/2 5U8 OR 6GJ8 2ND SYNC. SEP.
V51 6CM7 VERT. OSC. VERT. OUTPUT
T102 VERT. OUTPUT TRANS.
S101 DEFLECTION YOKE SOCKET
P101 DEFLECTION YOKE PLUG
L101 DEFLECTION YOKE
T51 SYNCHRO-GUIDE TRANS.
V52 6GG7 HORIZ. OSC. DISCHARGE
V102 12AV5/GA HORIZ. OUTPUT
T103 HORIZ. OUTPUT TRANS.
V103 12AX4/GTA DAMPER
V104 1G3/GT HIGH VOLT. RECT.
L104 GRN-BLU 60 UH
L105 RFC
TO SPEAKER
TO CRT. STRAP
TO J54, J56 AND J59. SEE FOCUS ADJUSTMENT
PACK NO. 1
RC-51
RC-52
SEE HORIZ. OSC. ADJ.
DO NOT MEASURE
* VALUES OF THESE PARTS MAY VARY FROM THOSE SHOWN, REPLACE WITH EXACT DUPLICATE OF PART REMOVED.

Schematic Diagram Courtesy of Sears, Roebuck & Company